Site Inspection Report
Springfield-Branson Regional Airport

Greene County, Missouri

MON000704766

September 29, 2006

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

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DATE:	**September 29, 2006**
PREPARED BY:	**Shelly Jackson** **Missouri Department of Natural Resources**
SITE:	**Springfield Branson Regional Airport, Greene County**
C.A. NUMBER:	**V997381-04**
EPA ID. NUMBER:	**MON000704766**

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Missouri Department of Natural Resources (Department), through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), conducted a Site Inspection (SI) at the Springfield-Branson Regional Airport in Springfield, Greene County, Missouri.

The Springfield-Branson Regional Airport is approximately 1400 acres in size. The aircraft runways were not considered relevant to the purposes of this investigation, therefore the Springfield-Branson Regional Airport site consists of the airport terminal, vehicle parking lot, the south hanger, and several buildings and hangers that make up the eastern portion of the airport property. In 2003, the Springfield-Branson Regional Airport facility, along with other facilities in the Northwest Springfield area was identified for investigation due to its proximity to a groundwater contaminant plume in the Springfield Aquifer and its potential to be a contributor to that plume. The groundwater plume consists of volatile organic compounds (VOCs), specifically trichloroethylene (TCE) and its degradation products.

In 1994,a fuel farm of underground storage tanks (USTs) which stored aviation gasoline, turbine jet fuel and a small gasoline tank was taken out of service. In the process of removing the USTs, some were leaking, which resulted in the airport conducting remediation activities under the Department's Leaking Underground Storage Tank unit (Reference 3). In the process of the remediation, groundwater samples were collected. In addition to the expected gasoline and fuel related contaminants, dense non-aqueous phase liquids (DNAPLs), primarily TCE, were detected in the groundwater. Six inches of free product was measured in MW-20 (Reference 4), which is located south of the fuel farm. The location of MW-20 is identified on Figure 1 in Appendix A.

Because the upper aquifer is known to flow in a northeasterly direction and because there were no documented sources of volatile organic compounds (VOCs) such as TCE being used near the fuel farm, areas of the airport upgradient of the fuel farm were examined more closely. The only known airport location with documented use of VOC, including TCE, was at the aircraft hanger located south of the airport terminal, although there is no file documentation of a spill or illicit dumping of VOCs. The aircraft hanger (hanger) is currently being operated as a passenger bus parking and loading zone.

The purpose of this investigation was to collect sufficient information concerning conditions at the site to assess the threat posed to human health and the environment and to determine the need for additional action under CERCLA/SARA or other authority. One objective of the SI was to determine if VOC contamination, specifically TCE or its degradation products, was present in groundwater or subsurface soils at the site. A second objective was to determine if the site had contributed to the groundwater contaminant plume in Northwest Springfield. The scope of the investigation included reviewing previous file information, collecting and analyzing data from groundwater and subsurface soil samples collected from the Springfield-Branson Regional Airport property, and collecting additional non-sampling information. The SI was initiated on May 1, 2005. The investigation included a site visit on October 13, 2005, and sampling events on November 3, 2005 and December 8, 2005.

2.0 SITE DESCRIPTION

2.1 Location

The Springfield-Branson Regional Airport Site is located at 5000 West Kearney Street, Springfield, Greene County, Missouri in Section 6 and Section 7, Township 29 North, Range 22 West (Reference 5). Figure 2 in Appendix A is a Site Location map. The geographic coordinates for the center of operations of the site are 37.248933° North latitude and -93.37817° West longitude, as measured at the northern side of the hanger using a Trimble Geoexplorer XT GPS unit (Reference 6). Directions to the site are as follows: From Interstate 44 in Springfield travel west to Exit 75 (US-160/West Bypass). Turn South on 160 and continue to the traffic light at Kearney Street. Turn west onto West Kearney Street/MO-744 and travel approximately one mile until Kearney Street becomes the access road to the Springfield-Branson Regional Airport (Photograph 1 in Appendix C). Follow the signs to the airport terminal; the site is located immediately past the terminal on the right.

Greene County has a temperate climate with hot summers and moderately cool winters. In winter, the average temperature is 35° Fahrenheit (F), with an average daily minimum temperature of 25° F. In summer, the average temperature is 80° F, with an average daily maximum temperature of 85.9° F (Reference 7, p. 1, 13). The prevailing wind direction is from the south-southeast, with an average speed of 12 miles per hour. The total annual precipitation at the site is approximately 41.47 inches (Reference 7, p. 48, 74). The 2-year, 24-hour rainfall for the area is estimated to be 3.8 inches (Reference 8).

2.2 Site Description

The Springfield-Branson Regional Airport is approximately 1400 acres in size. The Springfield-Branson Regional Airport site consists of the airport passenger terminal, vehicle parking lot, the hanger and several buildings and aircraft hangers that collectively make up approximately 67 acres along the eastern portion of the airport property. The site is primarily asphalt or building covered with a few small grassy areas. The site is very flat, with elevations ranging from 1260 to 1270 feet above mean sea level. The soil beneath the site is an acidic Keeno-Eldon cherty silt loam complex.

There are two aquifers under the site, the shallower Springfield Plateau aquifer and the deeper Ozark Aquifer. The upper Springfield Plateau aquifer is known to flow in a northeasterly direction. However, groundwater elevation maps of the area show that the groundwater from the Litton property proceeds west for almost 200 feet onto airport property before submitting to the general northeasterly flow direction (Reference 9, groundwater map). The airport obtains their drinking water from the City of Springfield.

In 2003, the Springfield-Branson Regional Airport facility was identified for investigation due to its proximity to a groundwater contaminant plume in the Springfield Aquifer and its potential to be a contributor to that plume. Adjacent properties to the Springfield-Branson Regional Airport site, including the Tuthill Corporation, M-D Pneumatics Division (Tuthill), which is located directly east of the airport's center of operations and the Missouri National Guard MO-AVCRAD facility, which is located in the center of the airport property, between the two aircraft taxiways were also recommended for investigation (Reference 10, page 3-2). These sites are identified in relation to the Springfield-Branson Regional Airport site in Figure 1 of Appendix A.

The Springfield-Branson Regional Airport was identified for investigation primarily due to the discovery of six inches of free product, primarily TCE, that was found in monitoring well MW-20 located near a former fuel farm at the center of the airport complex. The location of MW-20 is identified on Figure 1. Since there were not any documented sources of VOCs being used immediately near the fuel farm, areas of the airport upgradient of the fuel farm, towards the passenger terminal, were evaluated. The only known location with documented use of VOCs was at the aircraft hanger located south of the airport passenger terminal, and upgradient of the former fuel farm. There is no file documentation of a spill or illicit dumping of VOCs at this location. The aircraft hanger (hanger) is currently being operated as a passenger bus parking and loading zone.

The hanger is approximately 170 X 200 feet. It is a roofed structure that is connected to the airport terminal building on the west and has a support wall to the east that separates the hanger from the airport access road. The north and south sides of the building are completely open, presumably to allow for easy entrance and exit of aircraft (Photograph 1 in Appendix C). The hanger floor is concrete with floor drains that discharge to a Springfield municipal wastewater treatment plant. The hanger is paved all the way to the main terminal building to the north and for approximately 50 feet to the south until you get to a large grassy field. The field is inaccessible due to a barbed-wire fence except for a five by 20 foot swath at the edge of the pavement. Vehicular access to the site is restricted by signage stating "Authorized Vehicles Only". Foot access to the site is unrestricted.

2.3 Operational History

The Litton Systems, Inc site (Litton) is located immediately northeast of the Springfield-Branson Regional Airport center of operations (Figure 1 in Appendix A). Litton was identified in the 1980s as a contributor to the area groundwater contamination and soils on the Litton property are known to be contaminated with heavy metals and VOCs, including TCE (Reference 11, pages 2-6 and 2-7). In the course of the remediation activities on their site, Litton identified several area facilities, including Springfield-Branson Regional Airport, as potential contributors to the TCE groundwater plume (Reference 10).

In the 1970's, Litton Systems, Inc. and the Springfield-Branson Regional Airport conducted a property exchange. Then airport land now making up the north part of the Litton facility was traded for Litton property located west of Airport road, near the center of the current airport complex. The former Litton property that the airport received had served as a wastewater lagoon for Litton Industries, Inc. Sampling events conducted by Litton over the past 15 years have documented high levels of TCE in the area subsurface soil under the former wastewater lagoon from 4 feet to bedrock. (Reference 11, map). The location of the Litton Systems Inc site and the approximate locations of the property exchange are identified on Figure 1 in Appendix A).

The City of Springfield has owned and operated the airport since it opened in 1917. In 1945 the airport moved to the current location where it operated under an evolving series of names; the Springfield Greene County Airport, the Springfield Municipal Airport, and currently, the Springfield-Branson Regional Airport (Reference 12, page 12).

The hanger has been leased by the City of Springfield to a series of tenants. The hanger was occupied by the Missouri Air National Guard Missouri Aviation Classification and Repair Activity Depot (MO-AVCRAD) from 1964 to 1980 for aircraft painting and repair activities. In the painting or engine repair process it is highly probable that MO-AVCRAD used products containing TCE, however no documentation could be located from 1964 to 1980 to verify this. There is no record in the databases or the files to document a spill or report of illicit dumping at the hanger while under the operation of the MO-AVCRAD.

Air Midwest took over the hanger from 1984 to 1991 and conducted minor aircraft repair. The Department's files contains Material Safety Data Sheets (MSDS) for chemicals stored onsite. Two MSDS sheets include listings for products containing TCE (Reference 13). In addition, a Hazardous Waste Compliance Inspection was conducted by the Department's Southwest Regional Office in September 1990. Although the report documented several violations, there was no mention of stains or illicit dumping. The inspection report did document the generation of approximately five gallons of TCE waste per month (Reference 14).

WorldWide Aircraft Services (WorldWide) leased the hanger from 1991 to 1999 and used it for waste storage. There is little information in the files covering this period. However, in 1999, the airport retained The Forrester Group to conduct some sampling of a materials storage pad located an estimated 50 to 100 feet south of the hanger. This pad was used by WorldWide to store unknown chemicals. Results of the investigation are explained below.

The hanger currently operates as a passenger bus parking and loading zone.

2.4 Site History and Previous Investigations

2.4.1 Forrester Group Report, Investigation of the Material Storage Pad, 1998

In December 1998, the Forrester Group was hired by the Springfield-Branson Regional Airport to conduct some sampling of a storage pad located an estimated 50 to 100 feet south of the hanger. The concrete pad was approximately 10 foot by 40 foot concrete slab with a six inch lip and a roof. At

the time of sampling the pad surface was noted to be stained and several drums of suspected hazardous materials and wastes were noted, although the exact chemicals are not identified in the report.

The sampling of the soil underneath the five inch thick concrete storage pad documented elevated levels of arsenic and 1,1-dichloroethene (1,1-DCE) exceeding the Cleanup Levels for Missouri (CALM) for commercial land use (Reference 15). The airport notified WorldWide of the exceedance and recommended they contact the Department for consideration in the Department's Voluntary Cleanup Program (Reference 16). The Forrester Group notified the Department of the exceedance (Reference 17). After discussion with Department personnel, the contaminated soil was excavated until the ground surface tested clean. This excavation was conducted without Department oversight and it is unknown where the contaminated soil was disposed (Reference 18).
The material storage pad was also removed, apparently by the City of Springfield, but, again, ultimate disposal is unknown. The Forrester Group conducted verification sampling of the area under the material storage pad after removal and the area was determined to be 'clean' (Reference 18).

2.4.2 **Desk Top Review** (Reference 19)

A Desk Top Review of the Springfield-Branson Regional Airport was conducted on March 15, 2004 by the Department. In 1995, six inches of free product consisting of primarily TCE were found in MW-20 during a sampling event conducted by airport contractors. TCE was also detected in other nearby wells during that and subsequent sampling events. With the possibility that activities on the airport could have contributed to the area TCE groundwater plume, the Springfield-Branson Regional Airport was determined to be CERCLA eligible and a combined Preliminary Assessment/SI investigation was recommended.

2.4.3 **Abbreviated Preliminary Assessment (APA)** (Reference 20)

An APA was completed by the Department on November 20, 2004. The site was recommended for a Site Inspection investigation due to the presence of six inches of free product, consisting of primarily TCE found in a monitoring well located on airport property in 1995, the known use of TCE containing products by leasees of airport property, and the possibility that, while there is no documentation of spills or illicit dumping at the airport, the facility should be investigated as a potential contributor (Reference 4, page 5).

2.5 Waste Characteristics

2.5.1 Chlorinated Solvents and Dense Nonaqueous Phase Liquids (DNAPLs)

Chlorinated solvents, such as tetrachloroethylene (PCE), TCE, 1,1-DCE and 1,1,1-trichloroethane (1,1,1-TCA), are classes of VOCs encountered at various hazardous waste sites (Reference 21, p.2). Chlorinated solvents are man-made compounds that are often used by industry as chemical intermediates, or solvents in the metal finishing, textile processing, and paint industries (Reference 22, pp. 65-66; 37, p.51). Many chlorinated solvents are considered hazardous because they are mutagenic, carcinogenic, or teratogenic (Reference 23, p.2). It is not known if people exposed to

TCE in the air or drinking water have a higher risk of cancer or reproductive problems (Reference 23, p. 5). TCE can degrade to cis and trans 1,2-DCE, 1,1-DCE, and vinyl chloride (Reference 24). 1,1,1-TCA can degrade to 1,1-dichloroethane (1,1-DCA) and 1,1-DCE (Reference 24).

Polychlorinated solvents exist as DNAPLs. DNAPLs are separate-phase hydrocarbon liquids that are denser than water. As free-phase product, chlorinated solvents move downward through the soil under the force of gravity then flow laterally along the surface of a confining unit in the subsurface. Once in the subsurface, it is difficult or impossible to recover all of the trapped residual contamination. The chlorinated solvent that remains trapped in the soil/aquifer matrix acts as a continuing source of dissolved contamination to groundwater, preventing the restoration of the contaminated aquifer for many years (Reference 25, p. 1).

3.0 WASTE/SOURCE SAMPLING

3.1 Sample Locations and Analytical Results

Three soil borings were advanced for waste/source sampling. Table 1 in Appendix B provides sample collection data for these samples. Table 2 provides a list of the sample results. Soil boring sample locations and sample results are identified in Figure 3 of Appendix A. Appendix D contains sampling documentation.

A track-mounted hydraulic soil probe was used to advance the soil borings. A membrane interface probe (MIP) was used to determine whether VOCs were present in subsurface soils. The MIP was advanced to either bedrock or refusal while readings were collected at one-foot intervals. A millivolt reading to the power 6 (1.0E+06 mV) or higher indicated the potential for the presence of VOCs.

Soil boring SB-01 was located in the southeast corner of the site, approximately 20 feet south of the southeast corner of the hanger (Photograph 2). The initial drilling with the MIP probe allowed the probe to advance to 40.25 feet. Elevated MIP readings were detected when perched groundwater was encountered at 14-16 feet and at refusal. Three subsequent borings immediately adjacent to the first hole were unable to advance past 20.5 feet. It is suspected that the first boring may have penetrated a subsurface fault that could not be relocated. A subsurface soil sample was collected from SB-01 at 20.0-20.5 feet, which contained TCE at 0.048 milligrams per kilogram (mg/kg) or parts per million (ppm); significantly above (more than three times) background levels but below all health based benchmarks. No other VOCs were detected. Due to the collapsing of the subsurface soil in the boring, while groundwater was encountered at 13.0 feet, a groundwater sample could not be collected from SB-01.

A replicate sample of SB-01 was also collected and returned a TCE level of 0.0686 ppm. The results of the replicate subsurface soil sample was within the control limits established in the Quality Assurance Project Plan, Revision 4, Dated September 30, 2004 (Table 3 in Appendix B).

Soil boring SB-02 was located in the northwest corner of the site, approximately five feet northeast of the northwest corner (Photograph 3). While drilling at this location, department personnel were informed that the area between the former hanger and the airport terminal had been asphalt covered

since construction. A field decision was made to collect a soil sample from SB-02 at the current boring depth of 19.5-20.0 feet (prior to refusal or bedrock).

The sample collected from SB-02 contained 1, 1-DCA at 0.013 ppm, 1,1-DCE at 0.0312 ppm, cis-1,2-dichloroethene (cis-1,2-DCE) at 0.0135 ppm, PCE at 0.00571 ppm and TCE at an estimated level of 0.00362. These levels were significantly above background levels but below all health based benchmarks. Since groundwater had not been encountered in SB-02, a groundwater sample was not collected.

Soil boring SB-03 was located in the southwest corner of the site, approximately 50 feet south of the southwest corner of the hanger and was located in a small grassy area between the pavement and a chainlink fence (Photograph 4). A subsurface soil sample was collected at bedrock/refusal at 19.5-20.0 feet. This sample returned analysis results of 1, 1-DCA at 0.0294 ppm, 1,1-DCE at 0.0113 ppm and cis-1,2-DCE at 0.0135 ppm. These levels are significantly above background levels but below all health based benchmarks.

The Springfield-Branson Regional Airport sampling event coincided with the sampling events of two other sites that were potential contributors to the observed groundwater contaminant plume in the Springfield Aquifer. One site, Tuthill, is located immediately east of the Springfield-Branson Regional Airport. The background groundwater and subsurface soil samples were collected during the Tuthill investigation, resulting in a naming order that is inconsistent with the Springfield-Branson Regional Airport naming convention.

Background subsurface soil sample SB-06 was collected at 11.5 – 12.0 feet and no VOCs were detected (Photograph 6).

3.3 Conclusions

In 1995, six inches of free product, primarily TCE, was found in a monitoring well located on airport property. This monitoring well, MW-20, was installed as the result of fuel leaks from the airport's UST fuel storage area. Groundwater flow in the upper aquifer is known to have a general northeasterly flow in the area. As chlorinated solvents are not expected to be found near fuel releases and there were no known users of TCE on airport property in the immediate vicinity of the fuel farm, potential sources upgradient were investigated. The hanger located south of the passenger terminal has been occupied by three companies since 1964 that are known or suspected to have used VOC/TCE containing products.

A total of three sample borings were advanced: on the north and south sides of the hanger and in a grassy field at the southern border of the site. These sites were selected as the probable location of illicit dumping though there is no documentation in the files that illicit dumping occurred at the site.

Combinations of trace amounts of PCE and it's degradation products TCE, 1,1-DCA, 1,1-DCE, and cis-1,2-DCE were detected below health based benchmarks in all three subsurface soil samples. The MIP detected elevated levels at 14-16 feet in the soil immediately above the groundwater surface in the initial soil boring of SB-01. However, three subsequent borings encountered perched

groundwater at 13.0 feet and were unable to collect a groundwater sample due to the collapse of the soil boring.

The background subsurface soil sample was non-detect for all analytes. No MIP detections above the power 6 were detected in the soil between 0-19 feet, except the detection that was encountered above the groundwater surface. The VOC levels present in the subsurface soil samples do not indicate a source and may be due to vapor migration from groundwater.

4.0 GROUNDWATER PATHWAY

The information used for the Groundwater Pathway was edited from the February 4, 2003 Geohydrologic Summary of the Litton Systems, Inc site that is located across Airport Road from the Springfield-Branson Regional Airport. Although the area is heavily karsted, geohydrologic characteristics are not expected to vary significantly within one mile.

4.1 Hydrogeologic Setting (Reference 25)

The Springfield Branson Regional Airport site is located on the northeast edge of the Springfield Plateau of the Ozark Plateau sub-province of the Interior Highlands physiographic province in Missouri. This area is characterized by rolling uplands with shallow dissected valleys.
Groundwater flow direction may be influenced by three east-west faults that are within four miles of the Springfield Branson Regional Airport site. These faults may allow water to flow from the Springfield Plateau Aquifer to the Ozark Aquifer.

All known drinking water wells within four miles of the site draw from the Springfield Plateau or Ozark Aquifers. Table 4 of Appendix B illustrates the aquifer stratigraphy and hydrology.

4.1.1 Soil and Residuum

Stratigraphy

The soil beneath the Springfield Branson Regional Airport Site consists of Keeno-Eldon cherty silt loam complex. Keeno-Eldon cherty silt loam is composed of roughly twenty-five to fifty percent clay. Residuum beneath the soil is cherty silty clay that grades into cherty silty clayey gravel with depth. The soil and residuum range in thickness from 10 to over 60 feet beneath the site.

Hydrology

The pH of the Keeno-Eldon soil complex is acidic and ranges between 3.6 and 6.5. Permeability is moderate to rapid ranging from 0.2 to 6.0 inches per hour. The hydraulic conductivity is roughly 4.2 x 10^{-3} to 1.4 x 10^{-4} centimeters per second (cm/sec). Overburden groundwater flow is toward the north–northwest beneath the site.

4.1.2 Springfield Plateau Aquifer

Stratigraphy

Mississippian-age limestone is present beneath the site and is divided into the Burlington-Keokuk Limestone, Reeds Spring, and Fern Glen formations. These formations consist of limestone, cherty limestone, and argillaceous limestone units. The Mississippian-age rocks in this aquifer extend from near the ground surface to approximately 235 feet below the ground surface.

Hydrology

DGLS records show there are 412 groundwater wells within four miles of the Springfield-Branson Regional Airport site. A minority of the wells are completed in the Springfield Plateau Aquifer. Groundwater flow is toward the north to northwest. The hydraulic conductivity of the aquifer is roughly 7.8×10^{-3} cm/sec. Due to the karst nature or the area, permeability and gradient characteristics may vary over short distances.

4.1.3 Ozark Confining Unit

Stratigraphy

The deepest and oldest Mississippian-age rocks beneath the site consist of the Northview Formation. This formation is composed of shale and cherty limestone and is roughly 30 feet thick beneath the site. The Ozark Confining Unit forms a semi-effective barrier to downward migration of water.

Hydrology

Dyes injected into sinkholes, lagoons, and losing streams in the soils above the Springfield Aquifer were recovered in springs and gaining streams discharging from the Ozark Aquifer a few miles north-northeast of the site. This indicates that the Ozark Confining Unit is not an effective aquitard. Table 5 of Appendix B indicates the locations and measured flows of the springs that are located within four-miles of the site. The hydraulic conductivity of the confining unit ranges from 1.0×10^{-5} to 5.0×10^{-6} cm/sec.

4.1.4 Ozark Aquifer

Stratigraphy

Ordovician-Age Dolomite formations beneath the site are divided into the Cotter and Jefferson City Dolomite, Roubidoux Formation, and Gasconade Dolomite. These rocks extend between 265 feet to 1,170 feet below the ground surface and consist of dolomite, cherty dolomite, and the occasional sandstone and cherty sandstone bed.

Hydrology

The hydraulic conductivity of the Ozark Aquifer ranges from 1 x 10^{-4} to 1x10^{-5} cm/sec. Based on injected dyes detected in springs located in the Ordovician-age strata along the Little Sac River located north of the site, groundwater flow beneath the site may be toward the north-northeast.

The majority of the 412 wells within a four-mile radius of the site are completed in the Ozark Aquifer.

4.1.5 St. Francois Confining Unit

The St. Francois Confining Unit is an effective barrier to downward groundwater movement with a hydraulic conductivity as low as 1 x 10^{-8} cm/sec. The formation is approximately 150-feet thick and consists of Cambrian-age Derby-Doerun Dolomite and the Davis Formation. None of the wells within a four-mile radius penetrate this confining unit.

4.2 Groundwater Targets

Drinking water in the site area is obtained from a combination of private wells and public wells and systems, with the wells drawing from the Springfield Plateau and Ozark Aquifers.

The Department's Public Drinking Water Branch and DGLS databases contain records for 13 public wells within four miles of the Springfield-Branson Regional Airport Site. The table on the following page presents the populations served by these wells and identifies the aquifers they draw from. (Reference 25 and Figure 4 in Appendix A).

The DGLS databases list information on all wells that were installed after 1987. Prior to 1987, DGLS registry of private wells was not required. The DGLS databases do contain information on wells drilled before 1987, but only for those wells that the owner voluntarily provided information to DGLS (References 26, 27, 28, 29 and 30).

Estimated Population Served By Drinking Water Wells Within Four Miles of the Springfield-Branson Regional Airport Site

Distance (In Miles)	Name of Public Well	Total Number of People Served by Public Well	Number of Private Wells	Total Number of People Served by Private Wells	Total People Served by Groundwater	Aquifer for Public Wells
0-1/4	None	None	None	None	None	
1/4-1/2	None	None	None	None	None	
1/2-1	None	None	4	**10**	**10**	
1-2	Country Squire Village	142				Ozark
	Players Softball Complex	160				Ozark
	Evergreen Church (2 wells)	225				Both wells from Ozark
Total	4	**527**	52	**122**	**649**	
2-3	Travelers Mobile Home Park	50				Ozark
	Meadows Water Company	2,670				Ozark
	Northwest Baptist Church	80				Ozark
	Agape Life Fellowship	25				Ozark
	City of Springfield, Orchard Well (Well #10)	20,268				Ozark
Total	5	**23,093**	118	**277**	**23,370**	
3-4	KOA Campground	90				Ozark
	Ritter Spring Park	25				Ozark
	Fantastic Caverns (2 wells)	500				One: Ozark Two: Ozark and Springfield
Total	4	**615**	119	**279**	**894**	
TOTAL	**13**	**24,235**	**293**	**688**	**24,923**	

*The number of people served per private well was determined by multiplying the average household size of 2.34 persons per household by the number of wells within a certain distance**(Reference 31)**

Private residences not connected to a public system depend on domestic drinking water wells. DGLS databases show 293 private domestic wells within four miles of the site. Of these domestic wells, seven are drawing water from both the Springfield Plateau and Ozark Aquifers, 227 are drawing water the Ozark Aquifer, 47 are drawing water from the Springfield Aquifer, and 12 are drawing water from either the Springfield or Ozark Aquifers. Using the 2000 U.S. Census figure of

2.34 persons per household in Greene County (Reference 31), an estimated 688 people use domestic drinking water wells within four miles of the site. The table on the previous page presents the estimated populations using groundwater from both public and private sources within distance categories. Approximately 24,923 people are using groundwater within four miles of the site for drinking water purposes.

The nearest private well lies approximately 0.97 miles northeast of the site (Figure 2 of Appendix A). This well was not sampled as part of the investigation.

The Ozark cavefish (Amblyopsis rosae) is a federally listed threatened species located within four miles of the site and the site is within 0.25 miles of the state designated recharge area for the Ozark cavefish. The habitat of the Ozark Cavefish could be adversely affected if the groundwater or surface water feeding the caves were to become contaminated. (Reference 32)

4.3 **Sample Locations and Analytical Results** (Appendix D)

Two groundwater samples were collected in the course of the site investigation. These samples were collected from perched groundwater above the Springfield Aquifer. Samples collected from perched groundwater can document a release to the underlying aquifer.

Sample results were compared to SCDM, EPA PRGs, Missouri Water Quality Standards (MO WQS), and CALM benchmarks. All unfiltered groundwater samples were submitted to the ESP laboratory for analysis of VOCs. The sample locations are identified in Figure 5 in Appendix A and a summary of the groundwater sample collection and results is provided in Tables 6 and 7 in Appendix B. Photographs are available in Appendix C.

One groundwater sample (GW-01) was collected from soil boring SB-03 (Photograph 4). Due to collapsing soil conditions, this ground water sample was collected at 8.6 feet at the top of the water column before the boring walls collapsed. VOCs were detected at 1.38 milligrams per liter (ug/L) or parts per billion (ppb) for 1,1,1-TCA, 1,1-DCA was measured at 33.2 ppb, 1,1-DCE at 15.3 ppb and cis-1,2-DCE at 10.9 ppb. These levels are significantly above background levels, however they are below the Maximum Contaminant Levels (MCLs) as established by EPA.

One perched groundwater sample from MW-03 (Photograph 5), was collected during the Tuthill sampling event and was named using the numbering convention for that site even though it was located on airport property, approximately 500 feet southeast of SB-03. This sample was used as a background sample for both investigations. A temporary monitoring well was installed on November 3, 2005 and a groundwater sample was collected from 25 feet on December 8, 2005. No VOCs were detected in the background sample.

One trip blank was collected during the sampling event. The trip blank returned an acetone level of 20.0 ppb. Since no acetone was found in GW-03 or MW-03, the acetone presence is believed to be the result of laboratory contamination.

4.4 Conclusions

Two groundwater samples were collected in the course of the site investigation. VOCs detected in the groundwater sample consisted of the breakdown constituents of TCA and TCE, though no TCE was detected in the sample. No VOCs were detected in the background sample. Due to collapsing soil conditions, GW-01 was collected at the top of the water column before the boring walls collapsed.

Since TCE is a DNAPL and therefore expected to be found at the bedrock surface, the failure of TCE to appear in the groundwater sample does not necessarily indicate that TCE is not present at the bottom of the aquifer.

The lack of TCE in the soil column, as indicated by the lack of elevated levels in the MIP probe, indicates that TCE did not arrive at the bedrock by progressing through the soil strata. In addition, TCE typically leaves a 'trail' as it decends to the bottom of the aquifer that never fully descends (Reference 33), leaving remnants of TCE in the upper portions of the aquifer. Therefore, the lack of TCE in the water column and soil column and the insufficient amounts of VOCs present in the soil to be a source, suggests that the VOCs present in the soil are most likely due to vapor migration from contaminated groundwater. In addition, there is no file documentation to show that TCA was used by any of the airport tenants, while TCA is a known contaminant of the Litton site (Reference 11).

While elevated levels of chromium and lead were observed in the background sample, these levels may be due to the ubiquitous presence of these metals in the soil and because the groundwater samples were not filtered prior to analysis which can affect the sample results.

5.0 SURFACE WATER PATHWAY

5.1 Hydrologic Setting

Most of the Springfield-Branson Regional Airport Site is covered by asphalt or buildings. Stormwater impacting the majority of the site is directed away from the aircraft runways towards the ditch next to Airport Road. Stormwater entering the hanger is directed to floor drains that discharge to the municipal sewer. There are no natural permanent or intermittent stormwater drainages within 1,000 feet of the site. There are no wetlands present on the Springfield-Branson Regional Airport Site. Due to the heavily karsted nature of the area, the small amount of exposed surface area at the site and the lack of surface water pathways, stormwater impacting the site is expected to infiltrate the subsurface before encountering a surface water pathway. Therefore, a potential point of entry for surface water was not determined. Infiltrated water most likely discharges from the springs located over two miles north of the site.

The site lies outside of a floodplain. As the site is part of the airport, the ground surface has been graded flat. The upgradient surface water runoff area is nominal. The 2-year, 24-hour rainfall is approximately 3.8 inches.

5.3 Surface Water Pathway Conclusions

The surface water pathway was not evaluated as part of the SI investigation. Stormwater runoff from the site is minimal and is expected to infiltrate the subsurface before encountering a surface water pathway.

6.0 SOIL EXPOSURE AND AIR PATHWAYS

6.1 Physical Conditions

The Springfield-Branson Regional Airport site consists of the airport terminal, vehicle parking lot, the south hanger, and several buildings and aircraft hangers that make up the eastern portion of the airport property. The soil beneath the site is an acidic Keeno-Eldon cherty silt loam complex. The site is essentially flat and bordered by the airport terminal building to the west and north, the airport access road to the east and a chainlink fence to the south. Adjacent properties include Litton Systems, Inc. located across Airport road from the site, Tuthill located directly east of the center of operations and the Missouri National Guard MO-AVCRAD facility which is located in the center of airport property, between the two aircraft taxiways. Tuthill and the MO-AVCRAD facility were also recommended for investigation by Litton as potential contributors to the VOC groundwater plume.

Vehicular access to the site is restricted by signage stating "Authorized Vehicles Only". Foot access to the site is unrestricted.

6.2 Soil Exposure and Air Pathway Targets

The nearest residence is located approximately 1600 feet southeast of the site. There are no schools located within 200 feet of the site (Reference 32).

This land use surrounding the site consists of a mixture of rural and industrial activities. U.S. Census figures from 2000 indicate that an estimated 73 people live within one mile of the site. The estimated total population within four miles of the site is 24,507 people. The table on the following pager presents a breakdown of population by distance ring.

ESTIMATED POPULATION LIVING WITHIN FOUR MILES OF THE SITE	
MILES	POPULATION
0 to ¼	0
>¼ to ½	31
>½ to 1	42
>1 to 2	1,705
>2 to 3	7,711
>3 to 4	15,018
TOTAL	24,507

The Missouri bladder-pod (Lesquerella filiformis) is designated as a federally threatened species and may be present in areas surrounding the site in limestone glades or limestone rock outcroppings (Reference 30) surrounding the site. Due to the lack of limestone glades or outcroppings on the site, the Missouri bladder-pod is not expected to be located within the site boundary.

6.3 Soil Exposure and Air Pathway Conclusions

The site is underlain by ten to sixty feet of cherty silt loam complex consisting of twenty-five to fifty percent clay with a moderate to high permeability. The site is paved or grass covered with little to no bare soil. The nearest residence to the site is approximately 1600 feet to the southeast. The air pathway was not evaluated as part of the SI investigation

No surface soil samples were collected during the sampling event. As no health-based benchmarks were exceeded in the subsurface soil samples and the only detection of contaminants in samples 19.5 to 20.5 feet, the risk posed through the soil exposure pathway is expected to be very low.

7.0 SUMMARY AND CONCLUSIONS

The Springfield-Branson Regional Airport Site is located at 5000 West Kearney Street, Springfield, Greene County, Missouri. The Springfield-Branson Regional Airport site is owned by the City of Springfield has been in operation at this location since 1945. The site consists of the airport passenger terminal, vehicle parking lot, the south hanger, and several buildings and aircraft hangers that make up the eastern portion of the airport property. The site is primarily asphalt or building covered with a few small grassy areas. The site is very flat, with elevations ranging from 1260 to 1270 feet above mean sea level. The soil beneath the site is an acidic Keeno-Eldon cherty silt loam complex.

In 2003, the Springfield-Branson Regional Airport facility, along with other facilities in the Northwest Springfield area, was identified for investigation due to its proximity to a groundwater contaminant plume in the Springfield Aquifer and its potential to be a contributor to that plume. The groundwater plume consists of VOCs, specifically TCE and its degradation products.

In the course of a LUST investigation, MW-20 was found to contain six inches of free product, primarily TCE. Because the upper aquifer is known to flow in a northeasterly direction the site investigation focused on the hanger located upgradient of MW-20 and where TCE was known or suspected to have been used by airport tenants. The hanger is currently being operated as a passenger bus parking and loading zone.

The hanger was occupied by the National Guard's MO-AVCRAD facility from 1964 to 1980 for aircraft painting and engine repair. In 1984 Air Midwest leased the hanger and performed aircraft maintenance. WorldWide operated in the hanger and a nearby material storage pad from 1991 to 1999. These three companies either used TCE or conducted operations that typically involve the use of TCE.

In 1991, an airport consultant conducted an investigation of the materials storage pad. Soil samples collected from underneath the pad had elevated levels of arsenic and 1,1-DCE. A soil excavation was conducted without Departmental oversight.

The Department conducted a Desk Top Review in early 2004. The site was determined to be CERCLA eligible and a combined Preliminary Assessment/SI investigation was recommended. In late 2004, the Department completed an APA. The APA recommended a SI to determine if the site may have contributed to the area groundwater contamination plume.

A total of three subsurface soil source sample borings were conducted. Combinations of trace amounts of PCE and it's degradation products TCE, 1,1-DCA, 1,1-DCE, and cis-1,2-DCE were detected significantly above background but below all health based benchmarks in the three samples. The only MIP detection in the soil column between 0-19 feet was just above the groundwater level of 13 feet in SB-01, however a sample could not be collected due to the collapse of the soil boring. The background subsurface soil sample was non-detect for all analytes. The low VOC levels present in the three subsurface soil samples do not indicate the presence of a source. In addition, the lack of MIP detections in the soil column except for the one detection immediately above groundwater, suggests that the VOCs present in the soil at bedrock may be due to vapor migration from contaminated groundwater.

The site is underlain by the shallower Springfield Plateau Aquifer, the Ozark Confining unit and the deeper Ozark aquifer. There are 306 public and private wells within four miles of the site serving a potential 24,923 people from the Ozark Aquifer, the Springfield Aquifer, or a combination of both. The majority of public and private drinking water wells draw from the Ozark aquifer. The nearest private drinking water well is lies approximately 0.97 miles northeast of the site.

Two groundwater samples were collected in the course of the site investigation. VOCs detected in the groundwater sample consisted of the breakdown constituents of TCA and TCE, though no TCE was detected in the sample. No VOCs were detected in the background sample.

Due to collapsing soil conditions, GW-01 was collected at the top of the water column before the boring walls collapsed. Since TCE is a DNAPL and therefore expected to be found at the bedrock surface, the failure of TCE to appear in the sample does not necessarily indicate that TCE is not

present. The lack of TCE in the soil column, as indicated by the lack of elevated levels in the MIP probe, indicates that TCE did not arrive at the bedrock by progressing downward through the soil strata, but that it most likely is the result of vapor migration from contaminated groundwater. In addition, there is no file documentation that TCA was used by any of the airport tenants, while TCA is a known contaminant of the Litton site.

The surface water pathway was not evaluated as part of the SI investigation. Stormwater runoff from the site is minimal and is expected to infiltrate the subsurface before encountering a surface water pathway. The site lies outside of a floodplain and is flat.

The nearest residence is located approximately 1600 feet southeast of the site. There are no schools located within 200 feet of the site (Reference 32). This land use surrounding the site consists of a mixture of rural and industrial activities. An estimated 24,507 people live within four miles of the site.

No surface soil samples were collected during the sampling event. As no health-based benchmarks were exceeded in the subsurface soil samples and the only detection of contaminants in samples 19.5 to 20.5 feet, the risk posed through the soil exposure pathway is expected to be very low.

The surface water pathway was not evaluated as surface water runoff from the site is minimal and is expected to infiltrate the subsurface before reaching surface water.

Based on the information collected during the SI investigation, no further investigation of the Springfield-Branson Regional Airport Site is recommended.

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Shelly Jackson, Environmental Specialist — Date
Site Assessment Unit

Reviewed by: Julieann Warren 9-29-06
Julieann Warren, Chief — Date
Site Assessment Unit

Approved by: Robert C. Hi 9/29/06
for Dennis Stinson, Chief — Date
Superfund Section

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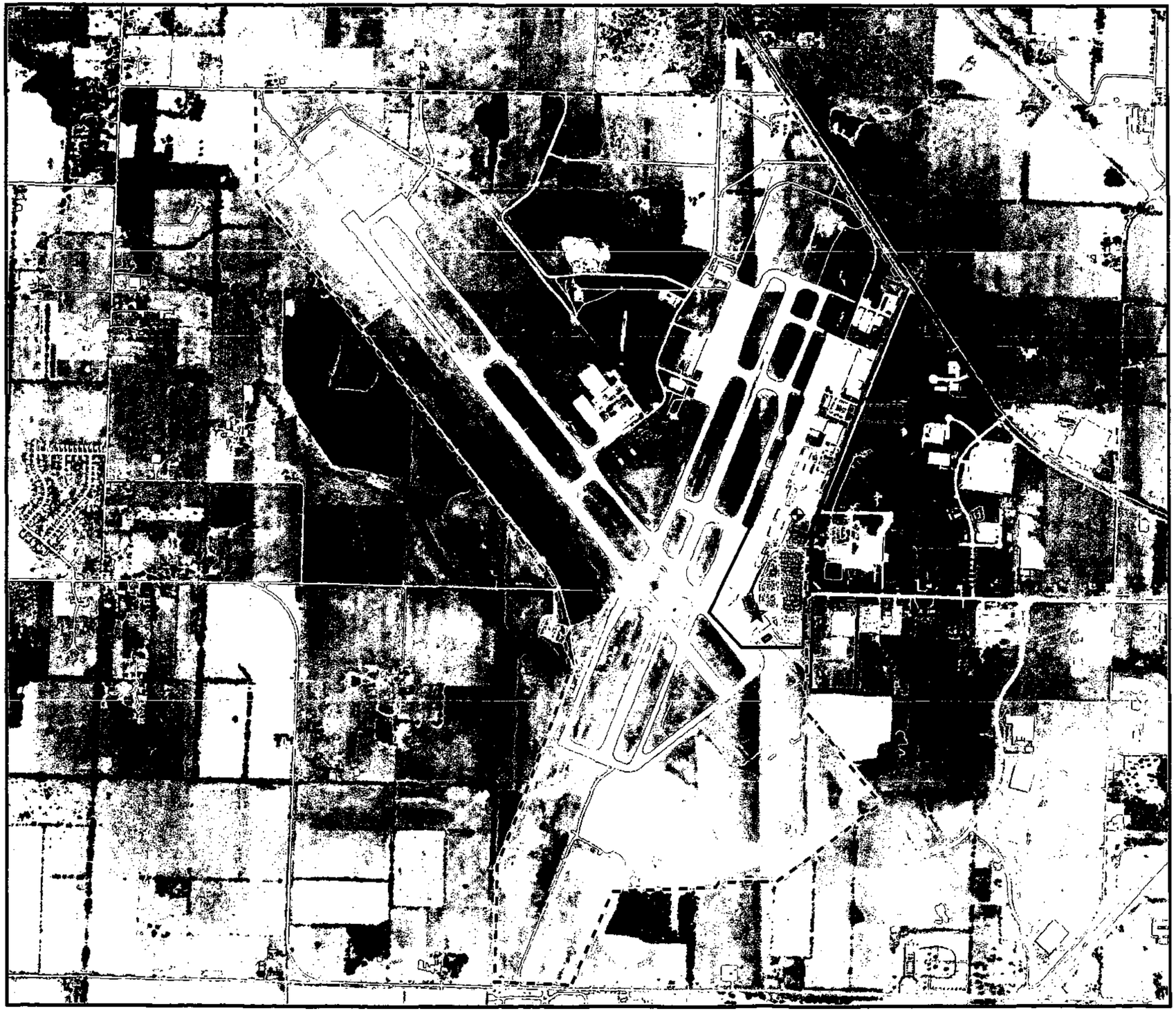
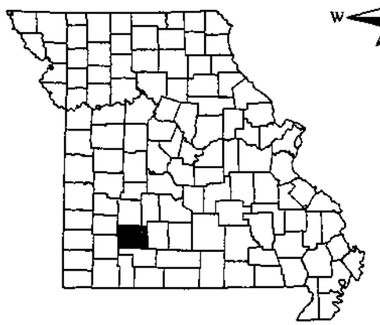
APPENDIX A: FIGURES

Figure 1
Site Reference Map
Springfield-Branson
Regional Airport Site
5000 W. Kearney
Springfield, Greene County, MO



Legend

- ★ Springfield Branson Regional Airport Site Center of Operations
- ◆ Monitoring Well MW-20
- Springfield-Branson Regional Airport Site
- Litton Industries Inc Site
- Tuthill Corporation, M-D Pnuematics Division Site
- ····· Approximate boundary of traded property
- - - Approximate boundary of the Springfield-Branson Regional Airport
- —— Approximate location of the Material Storage Pad

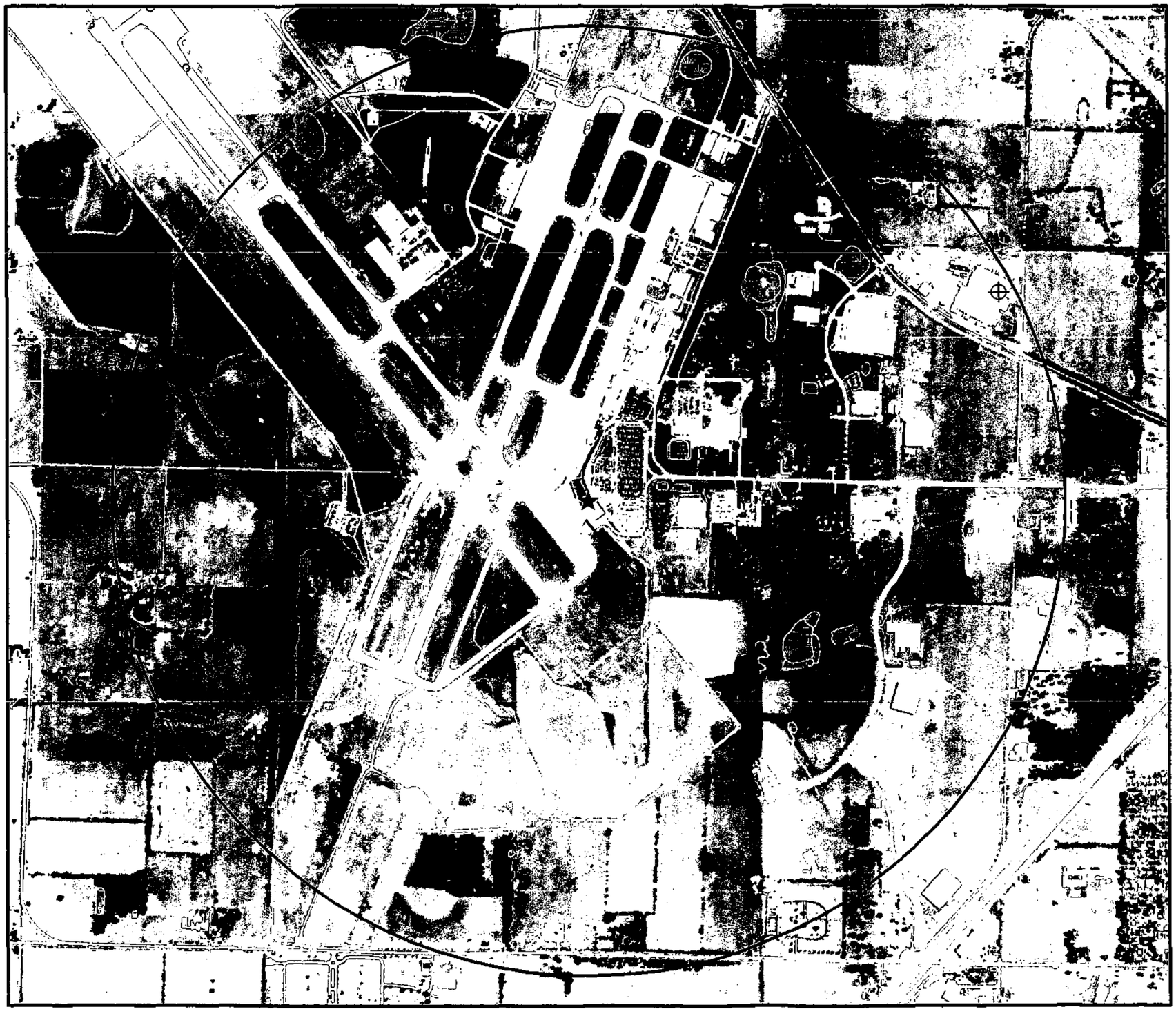


Created on: April 10, 2006 by Shelly Jackson

Base Map: National Agricultural Imagery Program, 2004. Flight Date: March 20, 1997.

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Figure 2
Site Location Map
Springfield-Branson
Regional Airport Site
5000 W. Kearney
Springfield, Greene County, MO



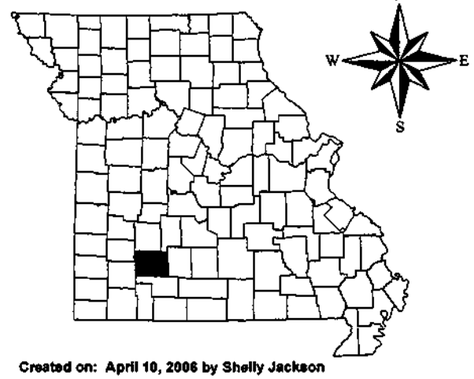
0.25 0.125 0 0.25 0.5 0.75 1

Mile

Legend

- ★ Springfield Branson Regional Airport Center of Operations
- ⊕ Nearest Private Drinking Water Well
- One Mile Radius
- Wetland
- Nearest Residence
- → Surface Water Drainage Route

Population: 73 persons within one mile



Created on: April 10, 2006 by Shelly Jackson

Base Map: National Agricultural Imagery Program, 2004. Flight date March 20, 1997.

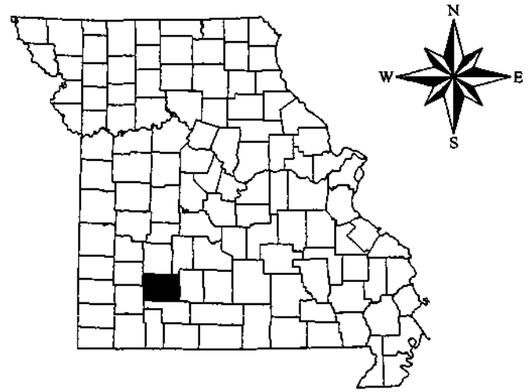
Data Sources: National Wetlands Inventory, US Fish and Wildlife Service; Population Data, US Census 2000; Wellhead Protection, MoDNR Public Drinking Water Branch; Sensitive Environments, Mo Department of Conservation.

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Figure 3
Subsurface Soil Sampling Locations and Results Map
Springfield-Branson Regional Airport Site
5000 W. Kearney
Springfield, Greene County, MO

Legend

★	Center of Operations
⊙	Groundwater Sample Location
XW-0#	Well Identification Number
##.#	Sample Collection Depth
Xx or #,# XXX	Analyte and Laboratory Analysis Result



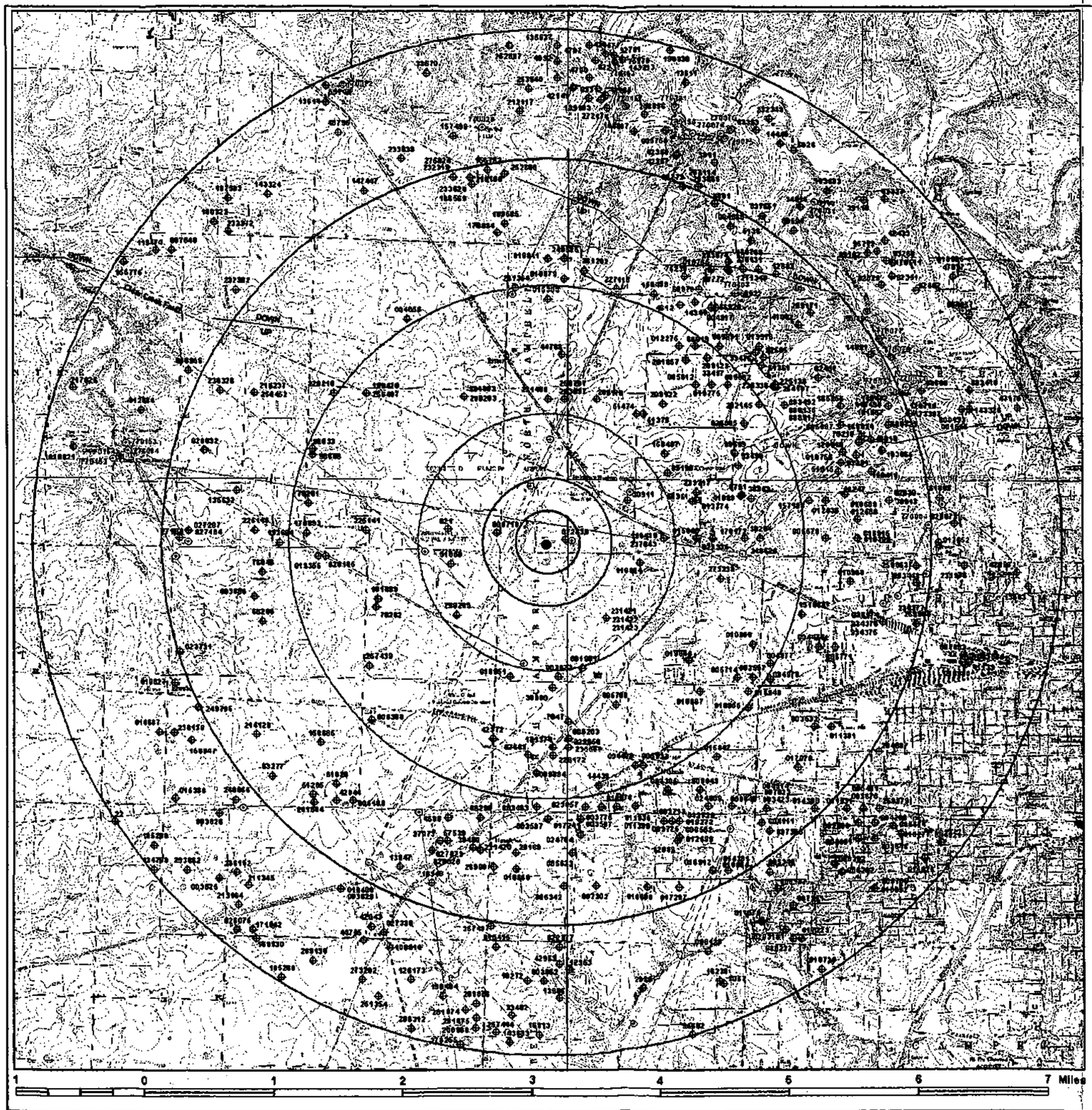
Created on: April 10, 2006 by Shelly Jackson

Base Map: USGS Brookline Digital Orthophoto Quad (DOQQ). Flight date March 20, 1997.

Although all data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Figure 4:
Four-Mile Well Survey
Litton Industries Site
Greene County, Missouri
December 17, 2003



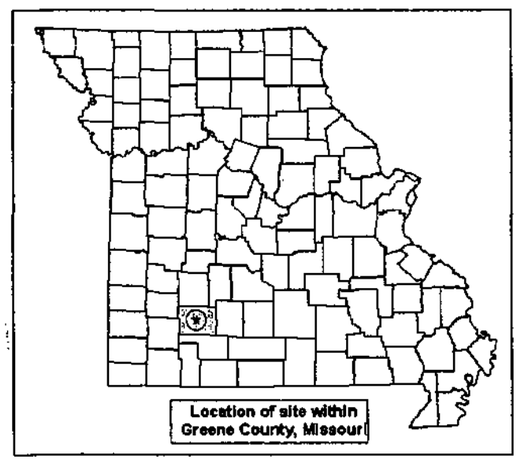
Target Limits

- 0.25 Mile
- 0.5 Mile
- 1 Mile
- 2 Miles
- 3 Miles
- 4 Miles

N
W E
S

- Litton Industries Site
- Well from MDNR/WPSCD Public Drinking Water Program(PDWP)
- Certified well from the Well Information Management System (WIMS) MDNR/GSRAD Wellhead Protection Section
- Well from MDNR/GSRAD sample well-log library (Logmain)
- Spring from MDNR/GSRAD spring database
- Dye injection point location from GSRAD MEGA database
- Dye reception point location from GSRAD MEGA database
- Connection line between dye injection and reception points (GSRAD MEGA)
- UP / DOWN — Observed fault. South side thrown down.
- DOWN / UP — Speculated fault. North side thrown down.

Well and spring locations were autoplotted from ArcView shapefiles and are accurate to within the smallest quarter section according to Table 1.



Base maps are taken from USGS 1:24,000 scale 37093-B3-TF-024 (Springfield), 37093-B4-TF-024 (Brookline), 37093-C3-TF-024 (Ebenezer), and 37093-C3-TF-024 (Willard) 7.5-minute quadrangles.


Kearney Street
GW-01
8.6'
1,1,1-TCA 1.38 ppb
1,1-DCA 33.2 ppb
1,1-DCE 15.3 ppb
cis 1,2-DCE 10.9 ppb
MW-03
(Background)
25'
Non-Detect for
VOCs
250 125 0 250 500 750 1,000
Feet

APPENDIX B: ANALYTICAL DATA TABLES

Table 1: SAMPLE COLLECTION DATA FOR SOIL SAMPLES COLLECTED NOVEMBER 3, 2005 SPRINGFIELD-BRANSON REGIONAL AIRPORT SITE, GREENE COUNTY, MISSOURI			
Sample Number	**Date Collected**	**Time Collected**	**Location Collected/Description**
0504174	11/3/04	1156	SB-01 located in the southeast corner of the terminal, 27.0-ft south of the southeast corner of the building. The soil was a tight red clay. Collected from the 20.0 to 20.5-foot depth.
0504175	11/3/05	--------	Replicate of SB-01.
0504176	11/3/05	1458	SB-02 located in the northwest corner of the terminal, 8.0-ft east of the northwest corner of the building. The soil was a tight red clay. Collected from the 19.5 to 20.0-foot depth.
0504177	11/3/05	1620	SB-03 located in southwest corner of the terminal in grass next to fence, 20.0-ft west of exit road. The soil was a loose, moist, red clay. Collected from the 19.5 to 20.0-foot depth.

TABLE 2: SELECTED ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED NOVEMBER 3, 2005, SPRINGFIELD-BRANSON NATIONAL AIRPORT SITE, GREENE COUNTY, MISSOURI

- All values listed in parts per million (mg/kg)
- NL denotes benchmark value not listed in reference source
- Sample results in bold are significantly above background concentrations
- Sample results in shaded cells exceed the lowest SCDM benchmark value
- Circled sample results exceed (your choice of any other benchmarks)

Sample ID[1]	SB-01	SB-01 Replicate	SB-02	SB-03	SB-06 Background	SCDM[2]	CALM[3]			EPA PRG[4]		
Depth of Sample, ft	20.0-20.5	20.0-20.5	19.5-20.0	19.5-20.0	11.5-12.0		Res	Ind	C_{LEACH}	Res	Ind	Migrn to GW
Laboratory Number	0504174	0504175	0504176	0504177	0504173							
Volatile Organic Compounds (VOCs)												
1,1-Dichloroethane	<.0025	<.0025	**.013**	**.0294**	<.0025	7800	NL	NL	NL	510	1700	23
1,1-Dichloroethene	<.0025	<.0025	**.0312**	**.0133**	<.0025	3900	0.4	1	0.09	120	410	0.06
cis-1,2-dichloroethene	<.0025	<.0025	**.0135**	**.0114**	<.0025	780	1200	1200	0.5	43	150	0.4
Tetrachloroethene (PCE)	<.0025	<.0025	**.00571**	<.0025	<.0025	12	40	120	0.1	0.48	1.3	0.06
Trichloroethene (TCE)	**.048**	**.0686**	**.00362 (e)**	<.0025	<.0025	58	40	89	0.1	0.053	0.11	0.06

[1] Above the PQL when background concentration is < PQL, or three times the background concentration when contaminant is detected in background sample.

[2] SCDM - Superfund Chemical Data Matrix, January 28, 2004, lower of reference dose and cancer risk benchmarks for soil pathway

[3] CALM - Cleanup Levels for Missouri, September 2001, residential and industrial use and leaching to groundwater soil benchmarks.

[4] EPA PRG - EPA Region 9 Preliminary Remedial Goals, October 2004, residential and industrial use, and migration to groundwater soil benchmarks (dilution/attenuation factor = 20).

e - denotes an estimated value, detected below PQL

TABLE 3: CALCULATION OF SAMPLE/SAMPLE REPLICATE RELATIVE PERCENT DIFFERENCE (RPD) TWO SAMPLES COLLECTED NOVEMBER 3, 2005 FROM THE SPRINGFIELD-BRANSON REGIONAL AIRPORT SITE, GREENE COUNTY, MISSOURI

All results are in mg/kg

Sample ID	SB01	SB01 Replicate	RPD
Laboratory Number	0504174	0504175	
Volatile Organic Compounds (VOCs)			
Trichloroethene (TCE)	.048	.0686	35.3

Table 4: Aquifer, Stratigraphy, and Hydrology of the Litton Industries Site

System	Stratigraphic Unit	Thickness (feet)	Lithology	Nature of Porosity and Permeability	Hydraulic Conductivity (cm/sec)	Hydrologic Unit
Post Mississippian	**Soil and Residuum**	10 - 60	Cherty, silty clay	Intergranular space throughout matrix with exception of clay; Moderate to rapid permeability	$1.4x10^{-4}$ - $4.2x10^{-3}$	None
Mississippian	**Burlington-Keokuk Limestones, Reeds Spring Formation, and Fern Glen Formation**	195 - 245	Cherty, coarse-grained, fossiliferous limestone	Limestone bedding seperations, fractures, and dissolution features; Moderate to high permeability	7.8×10^{-3}	Springfield Plateau Aquifer
	Northview Formation	30	Argillaceous limestone and shale	Bedding seperations, fractures, and possible dissolution features; Moderately low permeability	$1x10^{-5}$ - $5x10^{-6}$	Ozark Confining Unit
Ordovician	**Cotter and Jefferson City Dolomites, Roubidoux Formation, and Gasconade Dolomite**	approx. 1200	Dolomite, cherty dolomite, sandstone, dolomitic sandstone, argillaceous dolomite, and minor shales	Bedding seperations and fractures; Moderate permeability	1×10^{-4} - 1×10^{-5}	Ozark Aquifer
Cambrian	**Eminence and Potosi Dolomites**					
	Derby-Doe Run Dolomites	150	Medium-crystalline dolomite with beds of silt, shale, and sand	Bedding seperations and fractures; Moderate to low permeability	$1x10^{-8}$	St. Francois Confining Unit

Data is from Davis, 1969; Imes and Smith, 1990; Imes and Emmett, 1994; and MDNR/DGLS well log records.

Table 5: Springs located wthin 4.0 miles of the Litton Industries site, Greene County Missouri								
ID Number	Distance	Name	Location within Section	Section	Township	Range	Elevation	Flow (gpm)
770152	3 to 4 Miles	CLEAR CREEK SPRING	NW1/4, SW1/4, NW1/4 (long section)	3	29N	23W	1155	NA
770153	3 to 4 Miles	CROOK (JIM) SPRING	NW1/4, SW1/4, SW1/4 (long section)	3	29N	23W	1150	NA
770154	3 to 4 Miles	GARDNER SPRING	NW1/4, SW1/4, SW1/4 (long section)	2	29N	23W	1155	NA
770156	3 to 4 Miles	FANTASTIC CAVERNS SP	NE1/4, NW1/4, NE1/4	33	30N	22W	1100	NA
770157	3 to 4 Miles	PARRISH SPRING	SW1/4, SW1/4, SW1/4	28	30N	22W	1085	100 - 450
770162	3 to 4 Miles	UNNAMED SPRING	NW1/4, NW1/4, SW1/4	28	30N	22W	1160	NA
770004	3 to 4 Miles	CLEAR CREEK PARK SPRING	NW1/4, SW1/4, SW1/4 (long section)	3	29N	23W	1160	450-4,500
770028	3 to 4 Miles	STODDARD SPRING	NW1/4, NW1/4, NW1/4	32	30N	22W	1120	1 - 10
770031	3 to 4 Miles	RITTER PARK SPRING	NW1/4, NW1/4, SE1/4	34	30N	22W	1075	10-100
770033	2 to 3 Miles	RITTER SPRING (WEST)	SE1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1125	450-4,500
770034	3 to 4 Miles	RITTER SPRING (EAST)	NW1/4, NW1/4, SW1/4 (long section)	3	29N	22W	1125	450-4,500
770062	3 to 4 Miles		NW1/4, NE1/4, NE1/4 (long section)	4	29N	22W	1095	NA
770072	3 to 4 Miles	QUARRY WALL SPRING	NE1/4, SE1/4, SE1/4	25	30N	23W	1210	NA
770074	3 to 4 Miles	WILLIAMS SPRING	NW1/4, NE1/4, NE1/4	33	30N	22W	1090	450-4,500
770075	3 to 4 Miles		NE1/4, NE1/4, NE1/4	33	30N	22W	1110	NA
770076	3 to 4 Miles		NE1/4, NE1/4, NE1/4	33	30N	22W	1080	NA
770077	3 to 4 Miles		NW1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1110	NA
770078	3 to 4 Miles	FIREPLACE SPRING	SE1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1110	NA
770084	2 to 3 Miles	VICH SPRING	SE1/4, NE1/4, SW1/4 (long section)	3	29N	22W	1260	NA
770107	2 to 3 Miles		NW1/4, NE1/4, NE1/4 (long section)	5	29N	22W	1245	NA
770201	3 to 4 Miles	PERTUCHE SPRING	SE1/4, SW1/4	28	30N	22W	1050	1 - 10

Springs were autoplotted from ArcView shapefiles. gpm=gallons per minute.

TABLE 6: SAMPLE COLLECTION DATA FOR GROUNDWATER SAMPLES COLLECTED NOVEMBER 3, 2005
SPRINGFIELD-BRANSON REGIONAL AIRPORT SITE, GREENE COUNTY, MISSOURI

Sample Number	Date Collected	Time Collected	Location Collected/Description
0504178	11/3/05	---------	Trip blank.
0504179	11/3/05	1600	Water grab from SB-03. Muddy brown water. Very silty.

TABLE 7: SELECTED ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES COLLECTED NOVEMBER 3 AND DECEMBER 8, 2005 SPRINGFIELD-BRANSON NATIONAL AIRPORT SITE, GREENE COUNTY, MISSOURI

- All values listed in parts per billion (ug/l) unless otherwise noted.
- NL defines benchmark value not listed [illegible]
- NA defines not analyzed
- Sample results in bold are significantly above background concentrations[1]
- Sample results in shaded cells exceed the lowest of the SCDM benchmark values

Sample ID	GW01	MW-0[illegible] Background	SCDM[2]		CALM[3]	EPA PRG[4]	MO WQS[5]
Laboratory Number	[illegible]	[illegible]	MCL	SL			
Date Collected	11/3/2005	12/8/2005					
Water Quality Indicators							
pH	NA	6	NL	NL	NL	NL	NL
Specific Conductivity, umhos/cm	NA	192	NL	NL	NL	NL	NL
Temperature	NA	9.5	NL	NL	NL	NL	NL
Metals							
Chromium, total	NA	[illegible] (i)	100	110	100	NL	100
Lead	NA	[illegible]	15	NL	15	NL	15
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	**1.38**	<.5	200	NL	200	3200	200
1,1-Dichloroethane	**33.2**	<.5	NL	3700	NL	810	NL
1,1-Dichloroethene	**15.3**	<.5	7	1800	7	340	7
acetone	<10.0	<10.0	NL	33000	NL	5500	NL
cis-1,2-dichloroethene	**10.9**	<.5	70	360	70	61	70

[1] Above the PQL when background concentration is < PQL, or three times the background concentration when contaminant is detected in background sampl

[2] SCDM - Superfund Chemical Data Matrix January 2004, Maximum Contaminant Level (MCL) for drinking water, and lowest of reference dose and cancer screening levels (SL) for groundwater/surface water pathway drinking water.

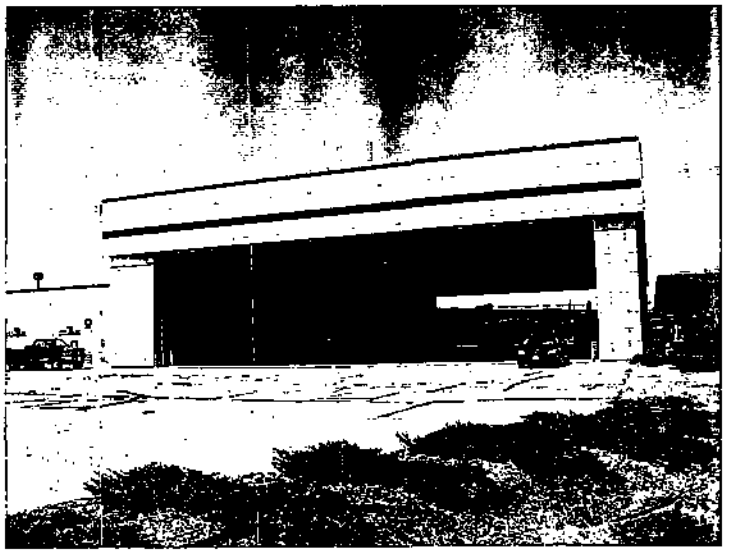
[3] CALM - Cleanup Levels for Missouri, September 2001, Groundwater Target Concentrations (GTARC)

[4] EPA PRG - EPA Region 9 Preliminary Remedial Goals, October 2004, tap water

[5] MO WQS - Missouri Water Quality Standards, groundwater/drinking water use catagories, Missouri Code of State Regulations, 10 CSR 20-7.031, October

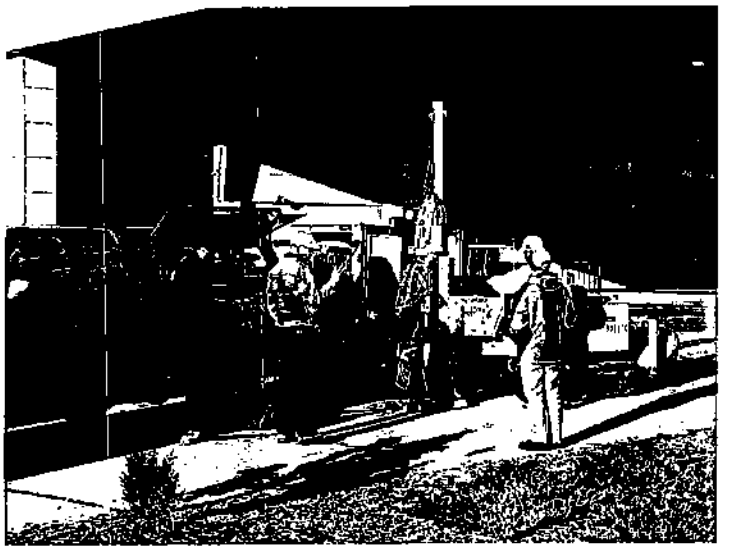
i - PQL elevated due to sample dilution

APPENDIX C: PHOTOGRAPHS



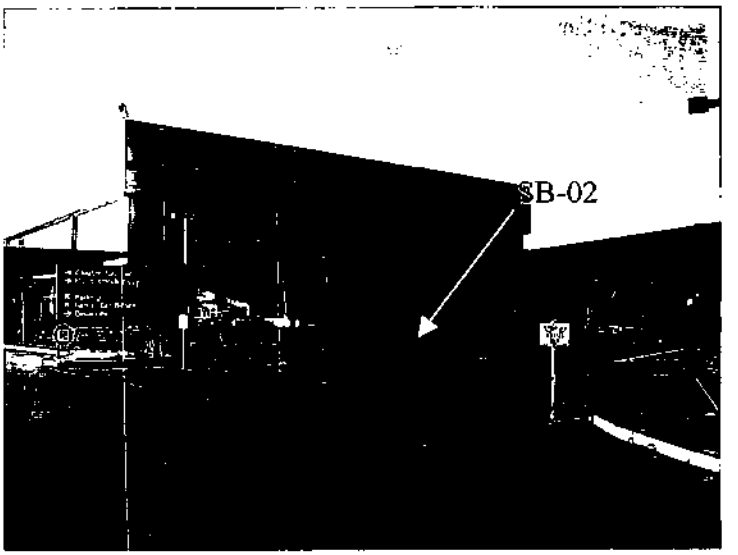
Photograph 1
Springfield-Branson
Regional Airport
Photograph taken November 2,
2005 by Shelly Jackson, SPF,
HWP, DEQ

Photograph of the South Hanger of the Springfield Branson National Airport from the southeast facing west/northwest.



Photograph 2
Springfield-Branson
Regional Airport
Photograph taken November 2,
2005 by Shelly Jackson, SPF,
HWP, DEQ

Photograph is of the location of Subsurface Soil Boring SB-01, located at the southeast corner of the South Hanger. MODNR staff are present for the drilling and sample collection.



Photograph 3
Springfield-Branson
Regional Airport
Photograph taken November 2,
2005 by Shelly Jackson, SPF,
HWP, DEQ

Photograph of the South Hanger of the Springfield Branson National Airport from the northeast facing southwest. Photograph is of the location of Subsurface Soil Boring SB-02 (as indicated by arrow.)

APPENDIX D: SAMPLING DOCUMENTATION

F Superfund

Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

MEMORANDUM

DATE: October 28, 2005

TO: Brian Allen, Chief, Superfund and RCRA Unit
Field Services Section, Environmental Services Program

FROM: Julieann Warren, Chief, Site Assessment Unit (SAU) MCS (for)
Superfund Section, Hazardous Waste Program

SUBJECT: Request for Assistance – Springfield/Branson Regional Airport – Preliminary Assessment/Site Inspection (PA/SI) Sampling Event

The Superfund Section of the Hazardous Waste Program requests that the Field Services Section of the Environmental Services Program prepare and implement a PA/SI sampling plan for the Springfield/Branson Regional Airport Site in Springfield, Missouri. The primary objective of the PA/SI sampling event is to assess potential threats to human health and the environment though the groundwater pathway.

The PA/SI sampling event will consist of collecting sub-surface soil samples from the south hanger located on the Springfield/Branson Regional Airport.

Background

The Springfield/Branson Regional Airport Site is one of several industrial sites located in the northwest Springfield area that are being investigated as potential contributors to groundwater contamination in the area.

The Springfield/Branson Regional Airport Site is located at 5000 W. Kearney Street, Springfield, Missouri 65803. Directions to the site are as follows: From Interstate 44 in Springfield go west to Exit 75 (US-160/West Bypass). Turn left onto US-160 and go approximately .25 miles to Kearney Street. Turn right onto West Kearney Street/ MO-744 and go approximately three miles. West Kearney becomes the entrance road to the airport.

The Springfield/Branson Regional Airport began operation in 1945. The south hanger has been the operating location of the Missouri Aviation Classification and Repair Activity Depot (MO-AVCRAD, MO National Guard) from 1964 to 1980. The National Guard operated the site as a helicopter repair and paint shop for 14 states. In 1984, a small aviation transportation company, Air Midwest, moved into the hanger. Air Midwest vacated the south hanger in 1991

where the track-mounted hydraulic probe is ineffective. If an auger is necessary, a photo ionization detector (PID) will be used to screen sub-surface samples for volatiles.

The south hanger faces towards the northwest, with full-width openings on the northwest and southeast ends. There are four proposed sampling locations, two at each of the open ends, roughly 10-20 feet in from the east and west support walls. At each sampling location, sub-surface samples will be collected at one-foot intervals until refusal is reached. These samples will be field analyzed for volatiles using the MIP or PID. If groundwater is encountered, one sample will be collected from each drilling to be analyzed for the same constituents as the soil samples.

All soil samples and potential groundwater samples will be submitted for laboratory analysis of VOAs by EPA Method 8260B, semi-volatiles by EPA Method 3510C or 3550B/8270C, and total metal analysis of chromium and lead by EPA Method 200.7/200.9. Appropriate background and quality control grab samples should also be collected. I estimate that less than 15 samples will be submitted for analysis.

The sampling event has been scheduled for November 7, 2005. Time incurred while meeting this request should be charged to 'Preliminary Assessment/Site Inspection', job number NJ02SPAP. For additional information, please contact Shelly Jackson of my staff at (573) 751-1288.

JW:sjl

Attachments

c: Connie Giesing, Environmental Service Program

Diagram Information

Title: **Springfield Branson Regional Airport**

Description: The facility is located at 5000 West Kearney Street, Springfield, in Greene County, Missouri. It is being investigated as a potential contributor to the TCE groundwater plume in the area.

Created By: Shelly Jackson

Created On: October 26, 2005

Last Modified By:

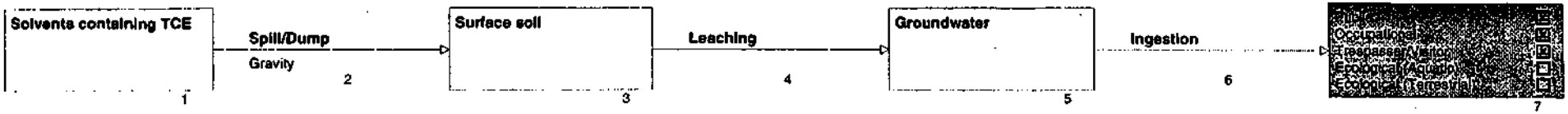
Last Modified On:

Notes: The Springfield/Branson Regional Airport Site is one of several industrial sites located in the northwest Springfield area that are being investigated as potential contributors to groundwater contamination in the area.

The Springfield/Branson Regional Airport Site is located at 5000 W. Kearney Street, Springfield, Missouri 65803. Directions to the site are as follows: From Interstate 44 in Springfield go west to Exit 75 (US-160/West Bypass). Turn left onto US-160 and go approximately .25 miles to Kearney Street. Turn right onto West Kearney Street/ MO-744 and go approximately three miles. West Kearney becomes the entrance road to the airport which is located at 5000 W. Kearney Street.

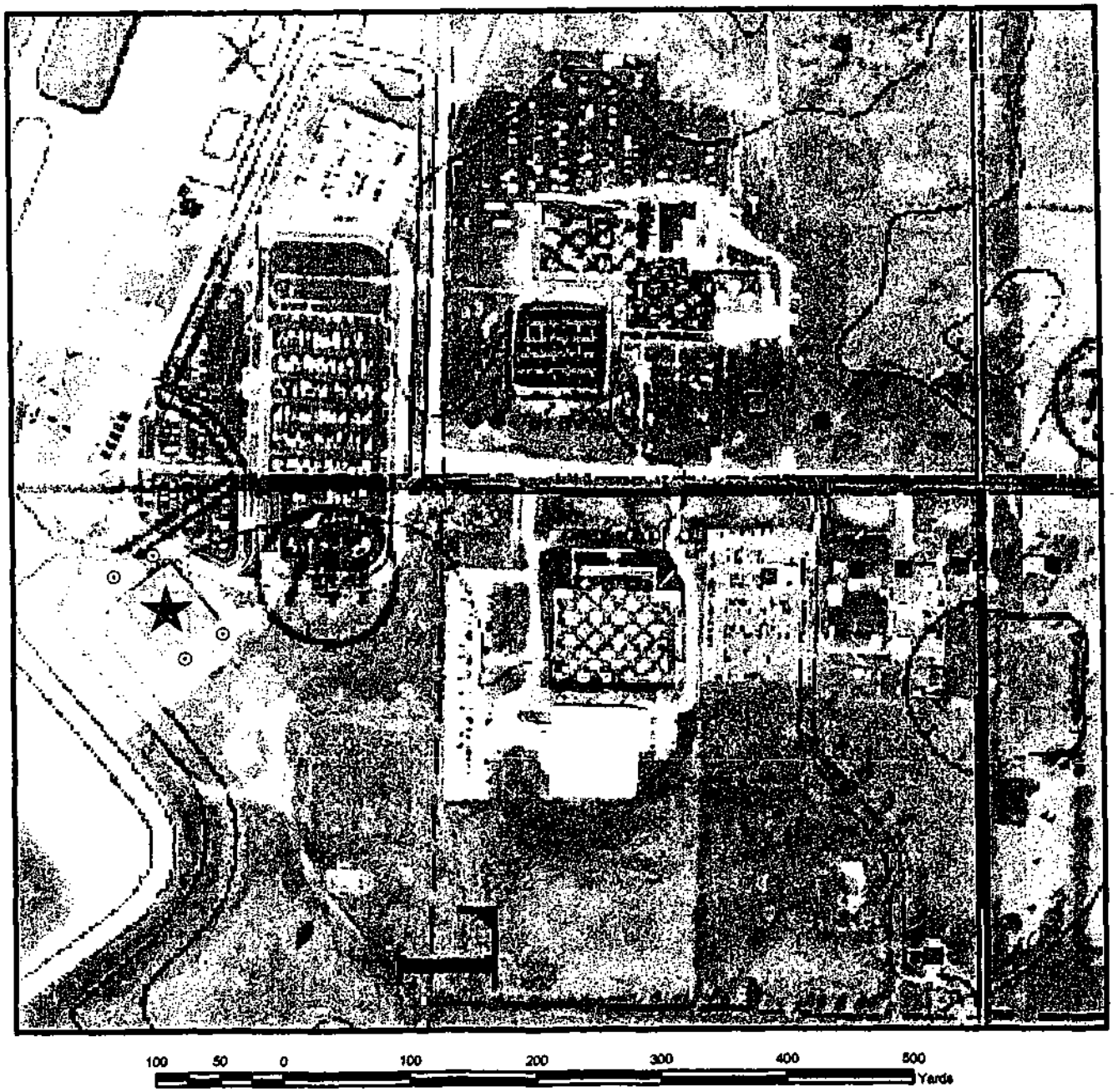
The Springfield/Branson Regional Airport, began operation in 1945. The south hanger has been the operating location of the Missouri Aviation Classification and Repair Activity Depot (MO-AVCRAD, MO National Guard) from 1964 to 1980. The National Guard operated the site as a helicopter repair and paint shop for 14 states. In 1984 a small aviation transportation company, Air Midwest, moved into the hanger. Air Midwest vacated the south hanger in 1991. WorldWide Technologies occupied the hanger from 1991 to 1999 to store used oil and solvents. A review of the file and operational activities of these businesses indicates that these entities conducted operations that historically have used TCE containing products.

Shelly Jackson conducted a site visit in November, 2004. She met with Gary Cyr, Assistant Manager, and Bruce


Solvents containing TCE
1
Spill/Dump
Gravity
2
Surface soil
3
Leaching
4
Groundwater
5
Ingestion
6
Occupational
Trespasser/Visitor
Ecological (Aquatic
Ecological (Terrestrial
7

Notes

Primary Source 1	File review indicates from 1964 to 1991 businesses that have occupied the site are believed to have used TCE containing products in their operations and also used the hanger for storage of used oil.
	Quanties used are unknown.
Release 2	Potentially workers may have improperly or accidentally disposed of contaminats by spilling or dumping them onto surface soils. Soils in the area are cherty, silty clays.
Source 3	Surface soils are currently covered by a layer of concrete that was poured in 2001. Solvent release and infiltration through soil. Soils in the area are cherty, silty clays.
Release 4	Suspected release from spilling/dumping to soils to groundwater. The area is heavily karsted, with sinkholes and springs common. Depth to bedrock is estimated at 20 to 60 feet.
Source 5	Groundwater monitoring conducted by Litton Industries has documented TCE contamination of the upper Ozark Aquifer and the lower Springfield Aquifer. Sampling of private wells NE of the airport has documented the presence of TCE.
	Depth to groundwater is estimated at 20 to 60 feet.
Exposure 6	Area residents receive their drinking water from private wells drilled into the Ozark Aquifer. TCE contamaination has been documented in several area wells, one of which was above the MCL for TCE of 5 ppb.
Receptor 7	An estimated 130 private wells in the area obtain their drinking water from the Ozark Aquifer.



Proposed Site Sampling Map
Springfield Branson Regional Airport
5000 W. Kearney Street
Springfield, MO 65803
Greene County

Legend

★ Springfield Branson Regional Airport, South Hanger

⊙ Proposed Soil Boring Location

October 24, 2005

Base Map: USGS Topographic Map, 7.5 Minute Series Brookline Missouri Quadrangle and Digital Ortho Quarter Quad.

Although all data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Missouri Department of Natural Resources
Air and Land Protection Division
Hazardous Waste Program

Preliminary Assessment/Site Inspection Sampling Report

Springfield/Branson Regional Airport Site
Springfield, Missouri
Greene County

November 3, 2005

Prepared For:

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Prepared By:

Missouri Department of Natural Resources
Field Services Division
Environmental Services Program

1.0 Introduction

As authorized under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986, the Missouri Department of Natural Resources (MDNR), Hazardous Waste Program (HWP), Site Assessment Unit is conducting a Preliminary Assessment/Site Inspection (PA/SI) on the Springfield/Branson Regional Airport (SBRA) site. The MDNR, HWP requested the MDNR, Environmental Services Program (ESP) to prepare and implement a sampling plan as part of the PA/SI.

On November 3, 2005, ESP Environmental Specialists Kenneth Hannon, Ron Sheeley, and Scott Robinett traveled to the site to conduct sampling. HWP Environmental Specialists Shelly Jackson, Rebecca Wells-Albers, Michael Stroh, and Jonathan Garoutte were present during the sampling event. Information learned from field observations and sampling will be used by the HWP in scoring the site's potential as a hazardous waste site under the CERCLA Hazard Ranking System.

2.0 Site Description and History

2.1 Location

The SBRA site is located at 5000 Kearney, Springfield, Greene County, Missouri. The site is located in the NE ¼ NW ¼ NW ¼ sec. 7, T. 29 N., R. 22 W. as noted on the Brookline Quadrangle 7.5 Minute Topographic map. Directions to the site are as follows: From Interstate 44 in Springfield go west to Exit 75 (US-160/West Bypass). Turn left onto US-160 and go approximately .25 miles to Kearney Street. Turn right onto West Kearney Street/MO-744 and go approximately three miles. West Kearney becomes the entrance road to the airport.

2.2 Description

The site is less than one acre in size and consists of one airplane hangar building estimated at 200' X 200'. The hangar is surrounded by concrete for at least 50 feet in each direction and is a very flat surface. A chain link fence borders the hangar on the west side, separating the hangar building from the airport runway. Access to the site is not restricted. Electrical lines are known to be located on the south side of the hangar building. Please refer to Appendix A for a map of the site.

2.3 Site History/Contaminants of Concern

The Springfield/Branson Regional Airport began operation in 1945. The south hangar was the operating location of the Missouri Aviation Classification and Repair Activity Depot (MO-AVCRAD, MO National Guard) from 1964 to 1980. The National Guard operated the site as a helicopter repair and paint shop for 14 states. In 1984, a small aviation transportation company, Air Midwest, moved into the hangar. Air Midwest vacated the south hangar in 1991 and WorldWide Technologies began using the hangar for storage of used oil and solvents. These

used at these locations to screen the soil. Soil screening was conducted at one-foot intervals down to refusal in each boring.

3.1.1.2 Depth-discrete soil sampling

Soil grab samples were collected utilizing a track-mounted hydraulic soil probe. Clean, disposable heavy walled polyvinyl chloride (PVC) liners were inserted into stainless steel macro core samplers fitted with clean or field decontaminated cutting shoes. The core samplers were advanced to the desired sampling depth via push tubes and the samplers and soil retrieved. The PVC liners were removed and cut open exposing the soil. Samples were transferred directly into EnCore™ sample containers immediately upon opening of the liners.

3.1.2 Groundwater sampling

Soil borings were investigated for the possibility of containing groundwater. Of the three soil borings conducted on-site, only one boring, SB-03, contained enough groundwater to obtain a groundwater sample. The soil boring was accessed for water retrieval by placing a ¾" PVC pipe down the bore hole and using ¼" polyethylene tubing with a check valve inserted into the bottom to retrieve groundwater. The PVC tubing was placed only 8.6-feet deep because the soil boring collapsed prior to pipe insertion. The check valve tubing was advanced to the bottom of the PVC tubing and a grab sample was immediately collected. No purging was performed prior to sample collection.

3.2 Sample Order

When feasible, attempts were made to collect all samples in the order from least-to-most contaminated areas.

3.3 Sample Quantity

A total of four soil samples and two water samples were collected during the sampling event. Refer to Table 1 and Table 2 for the identity, location, date, and time of each sample collected and Appendix A (site map) for the sample locations relative to the site.

3.4 Chain-of-Custody

All samples received a numbered label and the corresponding number was entered onto a chain-of-custody form indicating the location, date and time of collection, and analytes requested. Samples were stored and transported on ice in coolers. ESP field personnel maintained custody of the samples until relinquishing them to a sample custodian at the state's environmental laboratory within the Environmental Services Program in Jefferson City for analyses.

3.5 Analyses Requested

All samples were submitted for volatile organics analysis. Instructions were relayed to laboratory personnel that if any soil sample's total analyte levels exceeded 80% of twenty times the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit, TCLP analysis was to be performed on that sample.

6.0 Observations

The weather during the sampling event was clear and sunny with temperatures reaching approximately 65 degrees Fahrenheit. Winds were predominantly from the west at 15-25 miles per hour.

The MIP was not functional after the first soil boring, therefore, screening for volatile organics could not be performed with the MIP on holes SB-02 and SB-03. Soils from SB-02 and SB-03 were screened for volatile organics using a PID. No significant PID readings were noted in soils from either SB-02 or SB-03. A PID reading of 3.4 parts per million (ppm) was detected from SB-03 at the 2-3 foot depth interval. All other readings were 0.0 ppm.

Groundwater sampling was not performed in accordance to normal sampling procedures. HWP personnel did not initially request any well installation or groundwater sampling at this site but since groundwater was encountered in SB-03, the HWP requested an "informal" grab sample to be collected. The sample was collected immediately due to concerns of the borehole either collapsing or running dry. The extreme siltation of the groundwater from the borehole made sample collection difficult and the water did begin to run dry in the hole. SB-03 was drilled to 17-ft. depth but collapsed at 8.6-ft. Therefore the water sample was collected from the 8.6-ft.depth.

A well was placed just south of the southeast corner of the property that was initially intended to be a background temporary monitoring well. This well was also slated for use by HWP personnel as a background well for an investigation being performed at the adjacent Tuthill – M-D Pneumatics site. When initially drilled by DGLS personnel, the well was dry. DGLS personnel believe that the well should eventually contain water. The well was subsequently sampled when personnel returned to the area on December 8, 2005. Please refer to the Tuthill – M-D Pneumatics site sampling report for the analytical results of this sample (0505989)

Please refer to Table 1 and Table 2 for observations noted on each sample submitted for laboratory analyses.

TABLES

SBRA Site
Springfield, Missouri

Table 1
SBRA Site, Greene County, Missouri

Soil Sample Collection Data			
Sample Number	**Date Collected**	**Time Collected**	**Location Collected/Description**
0504174	11/3/04	1156	SB-01 located in the southeast corner of the terminal, 27.0-ft south of the southeast corner of the building. The soil was a tight red clay. Collected from the 20.0 to 20.5-foot depth.
0504175	11/3/05	--------	Replicate of SB-01.
0504176	11/3/05	1458	SB-02 located in the northwest corner of the terminal, 8.0-ft east of the northwest corner of the building. The soil was a tight red clay. Collected from the 19.5 to 20.0-foot depth.
0504177	11/3/05	1620	SB-03 located in southwest corner of the terminal in grass next to fence, 20.0-ft west of exit road. The soil was a loose, moist, red clay. Collected from the 19.5 to 20.0-foot depth.

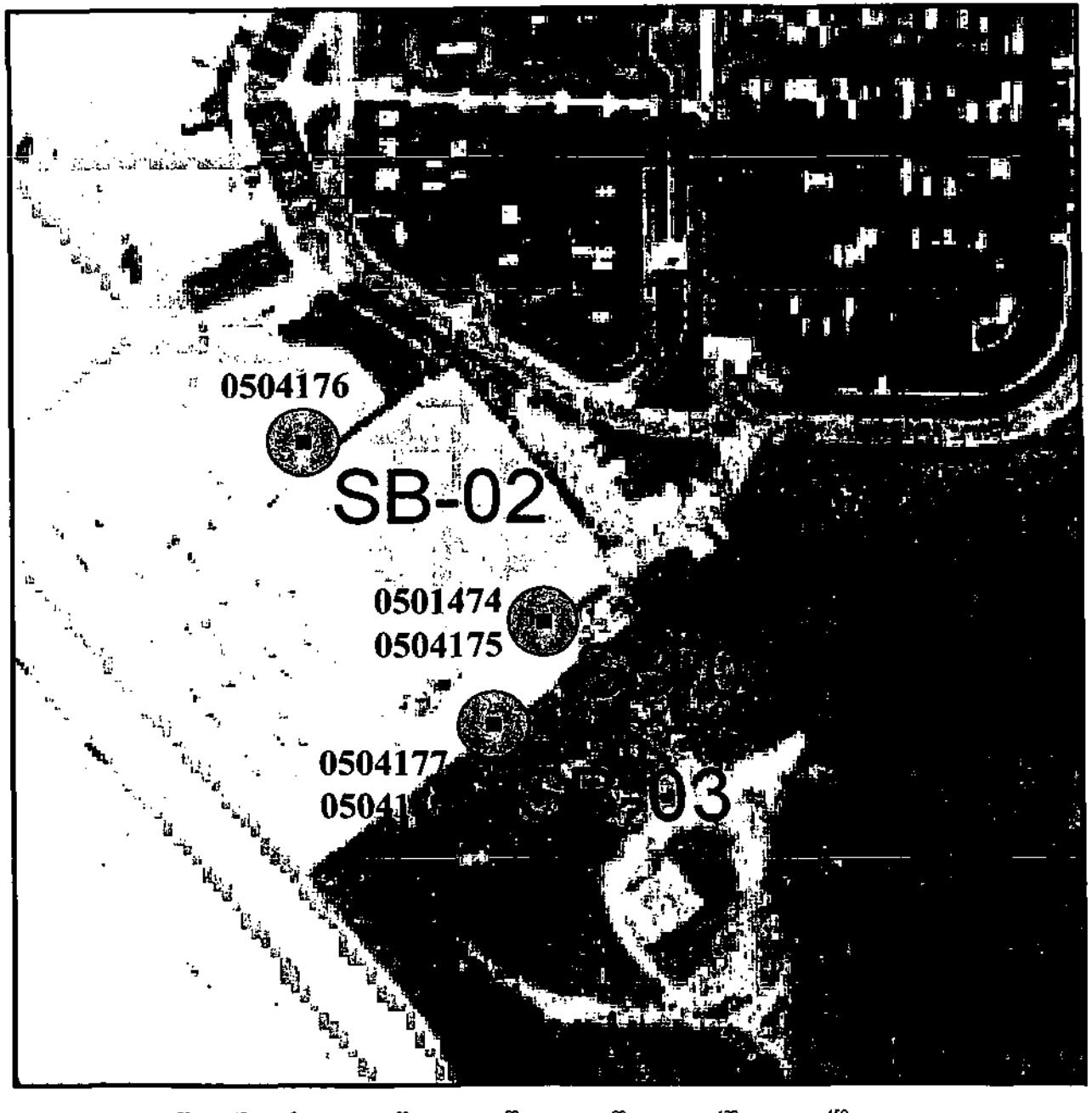
Table 2
SBRA Site, Greene County, Missouri

Water Sample Collection Data			
Sample Number	**Date Collected**	**Time Collected**	**Location Collected/Description**
0504178	11/3/05	---------	Trip blank.
0504179	11/3/05	1600	Water grab from SB-03. Muddy brown water. Very silty.

APPENDIX A

Site Map
SBRA Site
Springfield, Missouri

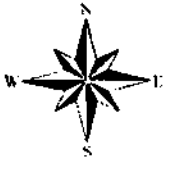
Soil Boring Sampling Map
Springfield Branson Regional Airport
5000 W. Kearney Street
Springfield, MO 65803
Greene County
November 3, 2005



Legend

Soil Boring

050417# = Sample Number



November 30, 2005

Base Map: USGS Topographic Map, 7.5 Minute Series Brookline Missouri Quadrangle and Digital Ortho Quarter Quad.

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Missouri Department of Natural Resources
Air and Land Protection Division
Hazardous Waste Program

APPENDIX B

Analytical Results
SBRA Site
Springfield, Missouri

Missouri Department of Natural Resources

Environmental Services Program

Order ID: 051107001 **Program, Contact:** HWP, Julieann Warren

Report Date: 11/30/2005 **LDPR:** QEPA4/NJ02SPAP

Order Comment:

Sample: 051107001-01 **Facility ID:** **Site:** Springfield/Branson Regional Airport

Customer # : 0504174 **County:** Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 11:56 AM

Matrix: Soils **Sample Comment:** *Soil grab from SE corner of terminal. 27.0 ft south of SE corner of building. 20.0 to 20.5 ft depth.*

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
Percent Moisture	Percent Moisture	35.8		%		Not Applicable
VOAs	1,1,1,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,1-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3,5-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-01

Customer # : 0504174

Facility ID: | Site: Springfield/Branson Regional Airport

County: Greene | Sample Reference ID: | Collect Date: 11/3/2005

Collector: Ken Hannon | Affiliation: ESP | Collect Time: 11:56 AM

Matrix: Soils | Sample Comment: Soil grab from SE corner of terminal. 27.0 ft south of SE corner of building. 20.0 to 20.5 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Methyl-t-butyl ether	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Naphthalene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Nitrobenzene	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Propylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	o-Xylene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Pentachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	p-isopropyltoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Propionitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Toluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Total Xylenes	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,2-Dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichloroethene	48.0	17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichlorofluoromethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Vinyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-02

Customer # : 0504175

Facility ID: | Site: Springfield/Branson Regional Airport

County: Greene | Sample Reference ID: | Collect Date: 11/3/2005

Collector: Ken Hannon | Affiliation: ESP | Collect Time:

Matrix: Soils | Sample Comment: Blind Replicate.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
Percent Moisture	Percent Moisture	35.6		%		Not Applicable
VOAs	1,1,1,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,1-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-02 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504175 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:**

Matrix: Soils | **Sample Comment:** Blind Replicate.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Chloroacetonitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloromethane	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,2-dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromomethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dichlorodifluoromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Diethyl ether	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachlorobutadiene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Iodomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Isopropylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	m&p-Xylenes	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methacrylonitrile	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methyl Acrylate	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylene chloride	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methyl-t-butyl ether	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Naphthalene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Nitrobenzene	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Propylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	o-Xylene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Pentachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	p-isopropyltoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Propionitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-03 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504176 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:** 2:58 PM

Matrix: Soils | **Sample Comment:** Soil grab SB-02 from NW corner of terminal. 8.0 ft east of the NW corner of the building. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromodichloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromoform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	carbon disulfide	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Carbon Tetrachloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroacetonitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloromethane	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,2-dichloroethene	13.5	17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromomethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dichlorodifluoromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Diethyl ether	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachlorobutadiene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-04

Customer # : 0504177

Facility ID:

Site: Springfield/Branson Regional Airport

County: Greene

Sample Reference ID:

Collect Date: 11/3/2005

Collector: Ken Hannon

Affiliation: ESP

Collect Time: 4:20 PM

Matrix: Soils

Sample Comment: Soil grab SB-03 from SW corner of terminal in grass next to fence and 20.0 ft west of exit road. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
Percent Moisture	Percent Moisture	45.1		%		Not Applicable
VOAs	1,1,1,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,1-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethane	29.4	17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethene	13.3	17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3,5-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-04

Customer # : 0504177

Matrix: Soils

Facility ID: | Site: Springfield/Branson Regional Airport

County: Greene | Sample Reference ID: | Collect Date: 11/3/2005

Collector: Ken Hannon | Affiliation: ESP | Collect Time: 4:20 PM

Sample Comment: Soil grab SB-03 from SW corner of terminal in grass next to fence and 20.0 ft west of exit road. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Toluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Total Xylenes	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,2-Dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichlorofluoromethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Vinyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-05

Customer # : 0504178

Matrix: Nonpotable Water

Facility ID: | Site: Springfield/Branson Regional Airport

County: Greene | Sample Reference ID: | Collect Date: 11/3/2005

Collector: Ken Hannon | Affiliation: ESP | Collect Time: 4:00 PM

Sample Comment: Trip blank.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	1,1,1,2-Tetrachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,1-Trichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,2-Trichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloropropanone	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,3-Trichlorobenzene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,3-Trichloropropane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,4-Trichlorobenzene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,4-Trimethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	0.50	ND	ug/L	Q51109-05VOA	8260B

Sample: 051107001-05

Customer # : 0504178

Facility ID: **Site:** Springfield/Branson Regional Airport

County: Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 4:00 PM

Matrix: Nonpotable Water **Sample Comment:** Trip blank.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Diethyl ether	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachlorobutadiene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Iodomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Isopropylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	m&p-Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methacrylonitrile	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl Acrylate	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylene chloride	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl-t-butyl ether	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Naphthalene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Nitrobenzene	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Propylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	o-Xylene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Pentachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	p-isopropyltoluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Propionitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	sec-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Styrene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	tert-Butylbenzene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Tetrachloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Tetrahydrofuran	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Toluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Total Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,2-Dichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,3-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Trichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Trichlorofluoromethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Vinyl Chloride	0.50	ND	ug/L	Q51109-05VOA	8260B

Sample: 051107001-06 Facility ID: Site: Springfield/Branson Regional Airport

Customer # : 0504179 County: Greene Sample Reference ID: Collect Date: 11/3/2005

Collector: Ken Hannon Affiliation: ESP Collect Time: 4:00 PM

Matrix: Nonpotable Water Sample Comment: Water grab of SB-03. SW corner of terminal.

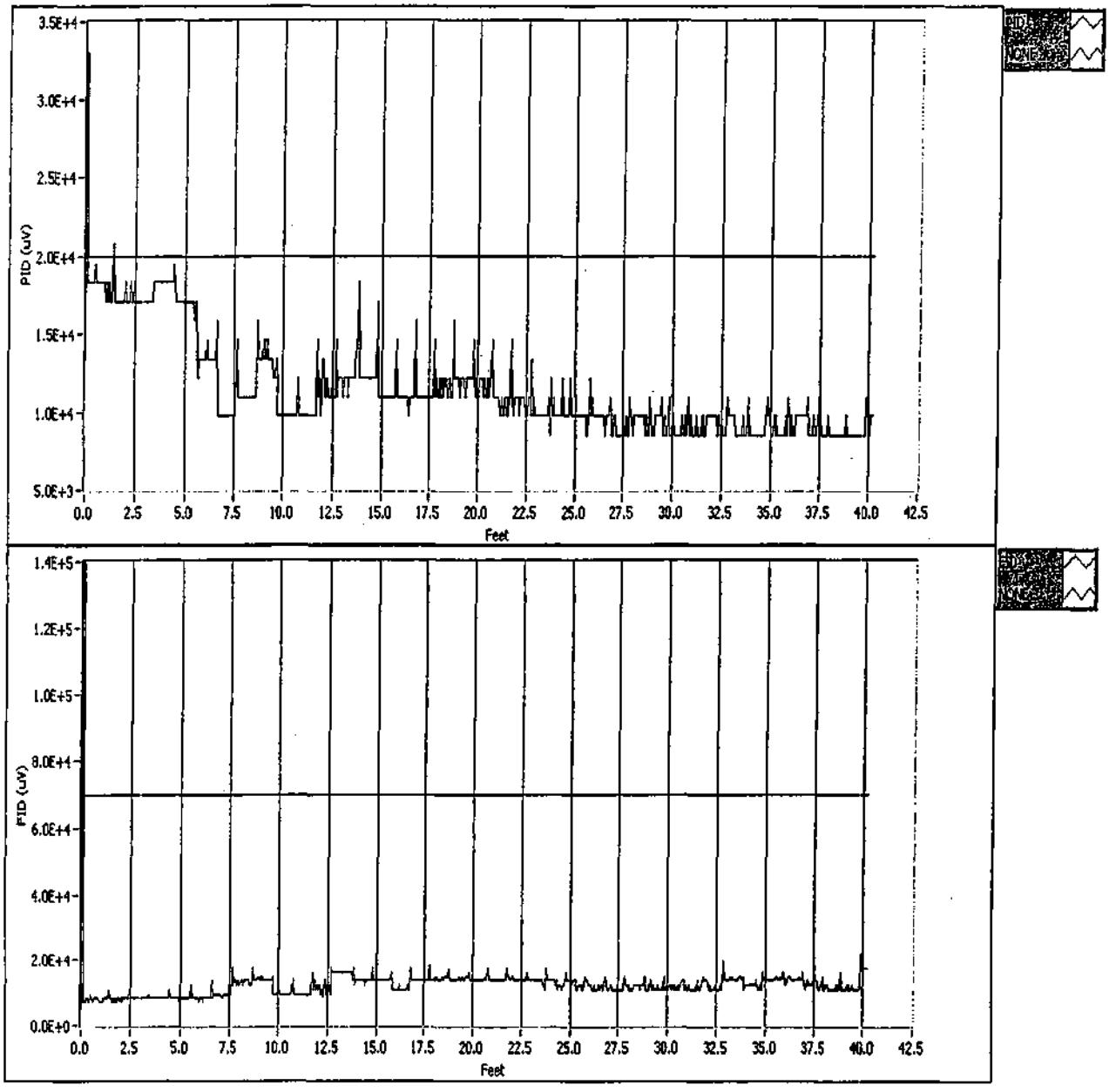
Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Bromoform	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Bromomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	carbon disulfide	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Carbon Tetrachloride	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroacetonitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chlorobenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroform	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloromethane	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	cis-1,2-dichloroethene	10.9		ug/L	Q51109-05VOA	8260B
VOAs	cis-1,3-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dibromochloromethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dibromomethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dichlorodifluoromethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Diethyl ether	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachlorobutadiene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Iodomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Isopropylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	m&p-Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methacrylonitrile	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl Acrylate	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylene chloride	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl-t-butyl ether	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Naphthalene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Nitrobenzene	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Propylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	o-Xylene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Pentachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	p-isopropyltoluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Propionitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	sec-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B

Date Printed: 11/30/2005

APPENDIX C

MIP Data
SBRA Site
Springfield, Missouri

MIP PLOT
File Name: C:\dirm95\LOGFILES\AP01.dat
Printed: Thursday, December, 01, 2005 12:10:40



Sample: 051107001-02 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504175 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:**

Matrix: Soils | **Sample Comment:** Blind Replicate.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	1,1-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3,5-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromodichloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromoform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	carbon disulfide	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Carbon Tetrachloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-01 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504174 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:** 11:56 AM

Matrix: Soils | **Sample Comment:** Soil grab from SE corner of terminal. 27.0 ft south of SE corner of building. 20.0 to 20.5 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromodichloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromoform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	carbon disulfide	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Carbon Tetrachloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroacetonitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloromethane	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,2-dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromomethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dichlorodifluoromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Diethyl ether	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachlorobutadiene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Iodomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Isopropylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	m&p-Xylenes	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methacrylonitrile	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methyl Acrylate	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylene chloride	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-02 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504175 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:**

Matrix: Soils | **Sample Comment:** Blind Replicate.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Chloroacetonitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloromethane	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,2-dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromomethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dichlorodifluoromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Diethyl ether	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachlorobutadiene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Iodomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Isopropylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	m&p-Xylenes	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methacrylonitrile	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methyl Acrylate	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylene chloride	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Methyl-t-butyl ether	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Naphthalene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Nitrobenzene	25.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	n-Propylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	o-Xylene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Pentachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	p-isopropyltoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Propionitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-03 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504176 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:** 2:58 PM

Matrix: Soils | **Sample Comment:** Soil grab SB-02 from NW corner of terminal. 8.0 ft east of the NW corner of the building. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromodichloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromoform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromomethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	carbon disulfide	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Carbon Tetrachloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroacetonitrile	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloroform	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Chloromethane	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,2-dichloroethene	13.5	17	ug/kg	Q51109-11VOA	8260B
VOAs	cis-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dibromomethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Dichlorodifluoromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Diethyl ether	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Ethylmethacrylate	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Hexachlorobutadiene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-04

Customer # : 0504177

Facility ID: **Site:** Springfield/Branson Regional Airport

County: Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 4:20 PM

Matrix: Soils **Sample Comment:** Soil grab SB-03 from SW corner of terminal in grass next to fence and 20.0 ft west of exit road. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
Percent Moisture	Percent Moisture	45.1		%		Not Applicable
VOAs	1,1,1,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,1-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1,2-Trichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethane	29.4	17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloroethene	13.3	17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,1-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,3-Trichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2,4-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloroethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3,5-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-04

Customer # : 0504177

Matrix: Soils

Facility ID: **Site:** Springfield/Branson Regional Airport

County: Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 4:20 PM

Sample Comment: Soil grab SB-03 from SW corner of terminal in grass next to fence and 20.0 ft west of exit road. 19.5 to 20.0 ft depth.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Toluene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Total Xylenes	5.00	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,2-Dichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichloroethene	2.50	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Trichlorofluoromethane	10.0	ND,17	ug/kg	Q51109-11VOA	8260B
VOAs	Vinyl Chloride	2.50	ND,17	ug/kg	Q51109-11VOA	8260B

Sample: 051107001-05

Customer # : 0504178

Matrix: Nonpotable Water

Facility ID: **Site:** Springfield/Branson Regional Airport

County: Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 4:00 PM

Sample Comment: Trip blank.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	1,1,1,2-Tetrachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,1-Trichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1,2-Trichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloropropanone	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,1-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,3-Trichlorobenzene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,3-Trichloropropane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,4-Trichlorobenzene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2,4-Trimethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	0.50	ND	ug/L	Q51109-05VOA	8260B

Sample: 051107001-05 | **Facility ID:** | **Site:** Springfield/Branson Regional Airport

Customer # : 0504178 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/3/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:** 4:00 PM

Matrix: Nonpotable Water | **Sample Comment:** Trip blank.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Diethyl ether	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachlorobutadiene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Iodomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Isopropylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	m&p-Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methacrylonitrile	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl Acrylate	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylene chloride	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl-t-butyl ether	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Naphthalene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Nitrobenzene	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Propylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	o-Xylene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Pentachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	p-isopropyltoluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Propionitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	sec-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Styrene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	tert-Butylbenzene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Tetrachloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Tetrahydrofuran	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Toluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Total Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,2-Dichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,3-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Trichloroethene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Trichlorofluoromethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Vinyl Chloride	0.50	ND	ug/L	Q51109-05VOA	8260B

Date Printed: 11/30/2005

Sample: 051107001-06

Customer # : 0504179

Facility ID: **Site:** Springfield/Branson Regional Airport

County: Greene **Sample Reference ID:** **Collect Date:** 11/3/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 4:00 PM

Matrix: Nonpotable Water **Sample Comment:** Water grab of SB-03. SW corner of terminal.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Bromoform	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Bromomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	carbon disulfide	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Carbon Tetrachloride	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroacetonitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chlorobenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloroform	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Chloromethane	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	cis-1,2-dichloroethene	10.9		ug/L	Q51109-05VOA	8260B
VOAs	cis-1,3-Dichloropropene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dibromochloromethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dibromomethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Dichlorodifluoromethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Diethyl ether	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Ethylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachlorobutadiene	1.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Hexachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Iodomethane	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Isopropylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	m&p-Xylenes	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methacrylonitrile	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl Acrylate	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylene chloride	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methylmethacrylate	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Methyl-t-butyl ether	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Naphthalene	2.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Nitrobenzene	5.00	ND	ug/L	Q51109-05VOA	8260B
VOAs	n-Propylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	o-Xylene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Pentachloroethane	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	p-isopropyltoluene	0.50	ND	ug/L	Q51109-05VOA	8260B
VOAs	Propionitrile	10.0	ND	ug/L	Q51109-05VOA	8260B
VOAs	sec-Butylbenzene	0.50	ND	ug/L	Q51109-05VOA	8260B

Date Printed: 11/30/2005

Sample: 051103009-04

Customer # : 0504173

Matrix: Soils

Facility ID:

Site: Tuthill/MD-Pneumonics

County: Greene

Sample Reference ID:

Collect Date: 11/2/2005

Collector: Ken Hannon

Affiliation: ESP

Collect Time: 6:00 PM

Sample Comment: Soil grab of SB-07, Background in SW corner of the site, 67 ft. NE of gate E-1 airport fence.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
Percent Moisture	Percent Moisture	26.9		%		Not Applicable
VOAs	1,1,1,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1,1-Trichloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1,2-Trichloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1-Dichloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1-Dichloroethene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1-Dichloropropanone	5.00	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,1-Dichloropropene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2,3-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2,3-Trichloropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2,4-Trichlorobenzene	10.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2,4-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2-Dichloroethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,3,5-Trimethylbenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,3-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,3-Dichloropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1,4-Dichlorobenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	1-Chorobutane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	2,2-Dichloropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	2-Butanone (MEK)	10.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	2-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	2-Hexanone	5.00	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	2-Nitropropane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	4-Chlorotoluene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	acetone	50.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Acrylonitrile	5.00	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Allyl Chloride	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Benzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Bromobenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Bromochloromethane	2.50	ND,17	ug/kg	Q51109-06VOA	8260B

Date Printed: 11/16/2005

Sample: 051103009-04 | **Facility ID:** | **Site:** Tuthill/MD-Pneumonics

Customer # : 0504173 | **County:** Greene | **Sample Reference ID:** | **Collect Date:** 11/2/2005

Collector: Ken Hannon | **Affiliation:** ESP | **Collect Time:** 6:00 PM

Matrix: Soils | **Sample Comment:** Soil grab of SB-07, Background in SW corner of the site, 67 ft. NE of gate E-1 airport fence.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	sec-Butylbenzene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Styrene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	tert-Butylbenzene	5.00	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Tetrachloroethene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Tetrahydrofuran	10.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Toluene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Total Xylenes	5.00	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	trans-1,2-Dichloroethene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	trans-1,3-Dichloropropene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Trichloroethene	2.50	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Trichlorofluoromethane	10.0	ND,17	ug/kg	Q51109-06VOA	8260B
VOAs	Vinyl Chloride	2.50	ND,17	ug/kg	Q51109-06VOA	8260B

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.

Qualifier Descriptions

01 Improper collection method	11 Estimated value, matrix interference
02 Improper preservation	12 Insufficient quantity
03 Exceeded holding time	13 Estimated value, true result is > reported value
04 Analyzed by Contract Laboratory	14 Estimated value, non-homogeneous sample
05 Estimated value, detected below PQL	15 No Result - Failed Quality Controls Requirements
06 Estimated value, QC data outside limits	16 Not analyzed - related analyte not detected
07 Estimated value, analyte outside calibration range	17 Results in dry weight
08 Analyte present in blank at > 1/2 reported value	18 Sample pH is outside the acceptable range
09 Sample was diluted during analysis	ND Not detected at reported value
10 Laboratory error	

for

Connie Giesing, Interim Program Director
Environmental Services Program
Field Services Division

Date Printed: 11/16/2005

Missouri Department of Natural Resources

Environmental Services Program

Order ID: 051209007 **Program, Contact:** HWP, Julieann Warren

Report Date: 1/23/2006 **LDPR:** QEPA4/NJ04MDPN

Order Comment:

Sample: 051209007-01 **Facility ID:** **Site:** TUTHILL Springfield Branson Regional Airport - Background Well

Customer # : 0505989 **County:** Greene **Sample Reference ID:** **Collect Date:** 12/8/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 5:30 PM

Matrix: Nonpotable Water **Sample Comment:** Water grab from well MW-03.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
BNAs	1,2,4-Trichlorobenzene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	1,2-Dichlorobenzene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	1,3-Dichlorobenzene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	1,4-Dichlorobenzene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4,5-Trichlorophenol	5.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4,6-Trichlorophenol	5.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4-Dichlorophenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4-Dimethylphenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4-Dinitrophenol	25.0	ND	ug/L	Q51219-02bna	8270C
BNAs	2,4-Dinitrotoluene	10.0	ND	ug/L	Q51219-02bna	8270C
BNAs	2,6-Dinitrotoluene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Chloronaphthalene	5.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Chlorophenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Methyl-4,6-dinitrophenol	10.0	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Methylnaphthalene	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Methylphenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Nitroaniline	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	2-Nitrophenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	3,3-Dichlorobenzidine	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	3-Nitroaniline	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Bromophenyl phenyl ether	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Chloro-3-methylphenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Chloroaniline	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Chlorophenyl phenyl ether	5.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Methylphenol	5.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Nitroaniline	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	4-Nitrophenol	25.0	ND	ug/L	Q51219-02bna	8270C

Date Printed: 1/23/2006

Sample: 051209007-01

Customer # : 0505989

Matrix: Nonpotable Water

Facility ID: " Site: TUTHILL

County: Greene Sample Reference ID: Collect Date: 12/8/2005

Collector: Ken Hannon Affiliation: ESP Collect Time: 5:30 PM

Sample Comment: Water grab from well MW-03.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
BNAs	Phenol	1.00	ND	ug/L	Q51219-02bna	8270C
BNAs	Pyrene	1.00	ND	ug/L	Q51219-02bna	8270C
Chromium-Total in Water	Chromium	350	09	ug/L		SW 846 6020 (ICP-MS)
Field pH	pH	6.00		pH Units		EPA 150.1
Field Specific Conductivity	Specific Conductivity	192		umhos/cm		SM 2510
Field Temperature	Temperature	9.50		degrees C		EPA 170.1
Lead-Total in Water	Lead	370		ug/L		SW 846 6020 (ICP-MS)
VOAs	1,1,1,2-Tetrachloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1,1-Trichloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1,2,2-Tetrachloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1,2-Trichloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1-Dichloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1-Dichloroethene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1-Dichloropropanone	1.00	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,1-Dichloropropene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2,3-Trichlorobenzene	2.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2,3-Trichloropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2,4-Trichlorobenzene	2.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2,4-Trimethylbenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2-Dibromo-3-chloropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2-Dibromoethane (EDB)	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2-Dichlorobenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2-Dichloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,2-Dichloropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,3,5-Trimethylbenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,3-Dichlorobenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,3-Dichloropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1,4-Dichlorobenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	1-Chorobutane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	2,2-Dichloropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	2-Butanone (MEK)	2.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	2-Chlorotoluene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	2-Hexanone	1.00	ND	ug/L	Q51219-01VOA	8260B
VOAs	2-Nitropropane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	4-Chlorotoluene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	4-Methyl-2-pentanone(MIBK)	0.50	ND	ug/L	Q51219-01VOA	8260B

Date Printed: 1/23/2006

Sample: 051209007-01 **Facility ID:** **Site:** TUTHILL

Customer # : 0505989 **County:** Greene **Sample Reference ID:** **Collect Date:** 12/8/2005

Collector: Ken Hannon **Affiliation:** ESP **Collect Time:** 5:30 PM

Matrix: Nonpotable Water **Sample Comment:** Water grab from well MW-03.

Test	Parameter	Result	Qualifier	Units	QC BatchID	Method
VOAs	Nitrobenzene	5.00	ND	ug/L	Q51219-01VOA	8260B
VOAs	n-Propylbenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	o-Xylene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Pentachloroethane	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	p-isopropyltoluene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Propionitrile	10.0	ND	ug/L	Q51219-01VOA	8260B
VOAs	sec-Butylbenzene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Styrene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	tert-Butylbenzene	1.00	ND	ug/L	Q51219-01VOA	8260B
VOAs	Tetrachloroethene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Tetrahydrofuran	2.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Toluene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Total Xylenes	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	trans-1,2-Dichloroethene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	trans-1,3-Dichloropropene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	trans-1,4-Dichloro-2-butene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Trichloroethene	0.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Trichlorofluoromethane	2.50	ND	ug/L	Q51219-01VOA	8260B
VOAs	Vinyl Chloride	0.50	ND	ug/L	Q51219-01VOA	8260B

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.

Connie Giesing

Connie Giesing, Interim Program Director
Environmental Services Program
Field Services Division

Qualifier Descriptions

01 Improper collection method	11 Estimated value, matrix interference
02 Improper preservation	12 Insufficient quantity
03 Exceeded holding time	13 Estimated value, true result is > reported value
04 Analyzed by Contract Laboratory	14 Estimated value, non-homogeneous sample
05 Estimated value, detected below PQL	15 No Result - Failed Quality Controls Requirements
06 Estimated value, QC data outside limits	16 Not analyzed - related analyte not detected
07 Estimated value, analyte outside calibration range	17 Results in dry weight
08 Analyte present in blank at > 1/2 reported value	18 Sample pH is outside the acceptable range
09 Sample was diluted during analysis	ND Not detected at reported value
10 Laboratory error	

Date Printed: 1/23/2006

NOTES FOR A
SEPARATE SITE

NOTES FOR A
SEPARATE SITE

Springfield-Branson Regional Airport

Day 3 | Arrival Time: 0735 11/3/05
Depart Time: 1700

Springfield/Branson Airport

SB-01) SE corner of terminal, 27.0 ft
south of SE corner of the building
ID # 05 03 [illegible] Time: 1156
Depth 20.5 ft
Rpt: BS [illegible]
H2O at [illegible] 16.0 ft Hits on FID + PID
[illegible]

78

SB-03 (cont) - H_2O @ 8.6 ft
Sample collected
I.D.# 0504179 Time: 1600
- muddy brown water - very silty

Trip Blank = 0504178

NOTES FOR A SEPARATE SITE

100

DATE 12-8-05

Enthill @ 1445-hrs Depart @ 1830

MW-03 33.35 TD

SBRA 14.2 DTW

Background 19.15 x .165 = 3.17

Sample x .057 = 1.7

~~H_2O began to run dry. Took sample after it had purged.~~

pH: 6.0 Temp: 9.5 °C

cond: 172

Well showed good recharge ∴ purged dry (approx. 2.5 gallons) and resampled once it recharged.

I.D.# 0505189

Time: ~~1715~~ 1730

- Muddy Brown water

NOTES FOR A SEPARATE SITE

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

COPY

FB

LABORATORY ORDER ID: _____

Collector's Name: (Please Print) Ken Harmon	**Description of Shipment**
Affiliation: (Circle one) (ESP) KCRO NERO SERO SLRO SWRO WPP GSRAD HWP Other:	Shipped-Carrier: _____
	Tape sealed and initialed
	X Hand Delivered
	No. Of Containers: 12

Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only: Matrix	Container	Preserved
504174 (Sample A)	Date: 11/3/05	VOAs; TCLP if applicable.						X Grab, Composite, Modified, Other:	Water, Y Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, VOA vial, 3 Encore, Other:	3 4° C(None), H2SO4, HNO3, NAOH, HCL, Disinfected, Other:
Lab Use Only	Time: 1156	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
504175 (Sample B)	Date: 11/3/05	VOAs; TCLP if applicable.						X Grab, Composite, Modified, Other:	Water, Y Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, VOA vial, 3 Encore, Other:	3 4° C(None), H2SO4, HNO3, NAOH, HCL, Disinfected, Other:
Lab Use Only	Time: —	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
504176 (Sample C)	Date: 11/3/05	VOAs. TCLP if applicable.						X Grab, Composite, Modified, Other:	Water, Y Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, VOA vial, 3 Encore, Other:	3 4° C(None), H2SO4, HNO3, NAOH, HCL, Disinfected, Other:
Lab Use Only	Time: 1458	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
504177 (Sample D)	Date: 11/3/05	VOAs. TCLP if applicable.						X Grab, Composite, Modified, Other:	Water, Y Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, VOA vial, 3 Encore, Other:	3 4° C(None), H2SO4, HNO3, NAOH, HCL, Disinfected, Other:
Lab Use Only	Time: 1620	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				

Relinquished By: Ken Harmon	Received By: L. Wilmann	Date: 11-7-05	Time: 955
Relinquished By:	Received By:	Date:	Time:
Relinquished By:	Received By:	Date:	Time:

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

COPY

B36

LABORATORY ORDER ID:

Collector's Name: (Please Print) Ken Hannon

Affiliation: (Circle one) (ESP) KCRO NERO SERO SLRO SWRO WPP GSRAD HWP Other:

Description of Shipment

Shipped-Carrier:

Tape sealed and initialed

X Hand Delivered

No. Of Containers: 14

Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only: Matrix	Container	Preserved
0504178 (Sample A)	Date: 11/3/05	VOA's. TCLP if applicable.						X Grab, Composite, Modified, Other:	X Water, Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, 2 VOA vial, Encore, Other:	H_2SO_4, HNO_3, NAOH, 2 HCL, 4° C(None), Disinfected, Other
For Lab Use Only	Time: 1600	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
0504179 (Sample B)	Date: 11/3/05	VOA's TCLP if applicable.						X Grab, Composite, Modified, Other:	X Water, Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, 2 VOA vial, Encore, Other:	H_2SO_4, HNO_3, NAOH, 2 HCL, 4° C(None), Disinfected, Other
For Lab Use Only	Time: 1600	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
	Date:							X Grab, Composite, Modified, Other:	Water, X Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 8 oz glass, VOA vial, 3 Encore, Other:	H_2SO_4, HNO_3, NAOH, HCL, 5 4° C(None), Disinfected, Other
								X Grab, Composite, Modified, Other:	Water, X Soil, Organic, Sludge, Other:	1L amber, Cubitainer, 2 oz glass, 2 8 oz glass, VOA vial, 3 Encore, Other:	H_2SO_4, HNO_3, NAOH, HCL, 5 4° C(None), Disinfected, Other

Relinquished By: Ken Hannon	Received By: L Wiemann	Date: 11-7-05	Time: 955
Relinquished By:	Received By:	Date:	Time:
Relinquished By:	Received By:	Date:	Time:

MISSOURI DEPARTMENT OF NATURAL RESOURCES.
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

B 2

LABORATORY ORDER ID: _____

ector's Name: (Please Print) Ken Hannon

liation: (Circle one) (ESB) KCRO NERO SERO SLRO SWRO WPP DGLS HWP Other:

Description of Shipment
- Shipped-Carrier:
- Tape sealed and initialed
- X Hand Delivered

No. Of Containers: 5

nple Number	Sample Collected	Analyses	Sample Type	For Lab Use Only: Matrix	Container	Preserved
505989 Sample A)	Date: 12/8/05	VOAs, BNA's, Total metals (Cr, Pb), TCLP if applicable.	1 Grab; Composite; Modified; Other:	1 Water; Soil; Organic; Sludge; Other:	2 1L amber; 1 Cubitainer; 2 oz glass; 8 oz glass; 2 VOA vial; Encore; Other:	H_2SO_4; HNO_3; NAOH; 2 HCL; 4° C(None); Disinfected; Other:
Lab Use Only	Time: 1730	D.O: Flow: pH: 6.0 Spec. Cond.: 192 Temp.: 9.5 Other:				
Sample B)	Date:		Grab; Composite; Modified; Other:	Water; Soil; Organic; Sludge; Other:	1L amber; Cubitainer; 2 oz glass; 8 oz glass; VOA vial; Encore; Other:	H_2SO_4; HNO_3; NAOH; HCL; 4° C(None); Disinfected; Other:
Lab Use Only	Time:	D.O: Flow: pH: Spec. Cond.: Temp.: Other:				
Sample C)	Date:		Grab; Composite; Modified; Other:	Water; Soil; Organic; Sludge; Other:	1L amber; Cubitainer; 2 oz glass; 8 oz glass; VOA vial; Encore; Other:	H_2SO_4; HNO_3; NAOH; HCL; 4° C(None); Disinfected; Other:
Lab Use Only	Time:	D.O: Flow: pH: Spec. Cond.: Temp.: Other:				
Sample D)	Date:		Grab; Composite; Modified; Other:	Water; Soil; Organic; Sludge; Other:	1L amber; Cubitainer; 2 oz glass; 8 oz glass; VOA vial; Encore; Other:	H_2SO_4; HNO_3; NAOH; HCL; 4° C(None); Disinfected; Other:
Lab Use Only	Time:	D.O: Flow: pH: Spec. Cond.: Temp.: Other:				

nquished By: Ken Hannon	Received By:	Date: 12-9-05	Time: 16:00
nquished By:	Received By:	Date:	Time:
nquished By:	Received By:	Date:	Time:

STATE OF MISSOURI Bob Holden, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.state.mo.us

MEMORANDUM

DEC 27 2002

DATE:

TO: Gary Behrns, Chief
Superfund Section, Hazardous Waste Program (HWP)
Air and Land Protection Division (ALPD)

FROM: Edward Galbraith, Chief
Tanks Section, HWP, ALPD

SUBJECT: Springfield-Branson Airport, 5000 W. Kearney, Springfield, Ripley County, MO
ST0006540, R0002324

The following information is being supplied in case your section had not previously received the data discussed. The Tanks Section is currently providing oversight for the investigation and cleanup of petroleum contamination associated with former underground storage tanks at the subject facility.

A brief file review of the subject site by Larry Baer of the Remediation Unit revealed positive analytical results for chlorinated solvents in numerous groundwater samples and at least one soil sample. Although concentration levels have generally decreased with time in the groundwater samples, it is not readily apparent that the source of these contaminants has been fully characterized. File documents basically assume the non-petroleum contamination has migrated from the adjacent Litton Advanced Circuitry site.

Attached is a partial copy of a figure from a file report and two tables created by Mr. Baer to summarize analytical results. The monitoring wells impacted by chlorinated solvents have been labeled on the figure. In addition to the groundwater contamination, two other discoveries are noted. In a 1995 site characterization report, 0.55 ft. of DNAPL was found in MW-20 (see attached figures). In a July 1997 report, a soil sample collected during drilling of a new monitoring well (MW-22) was found to have elevated levels of vinyl chloride and 1,2-DCE (see attached May 1997 table). It is not known if the soil sample was collected from above or below the water table.

EG:lbl

Attachments

Springfield-Branson Airport; ST6540, R2324
Analytical Results from May 1997 Site Characterization

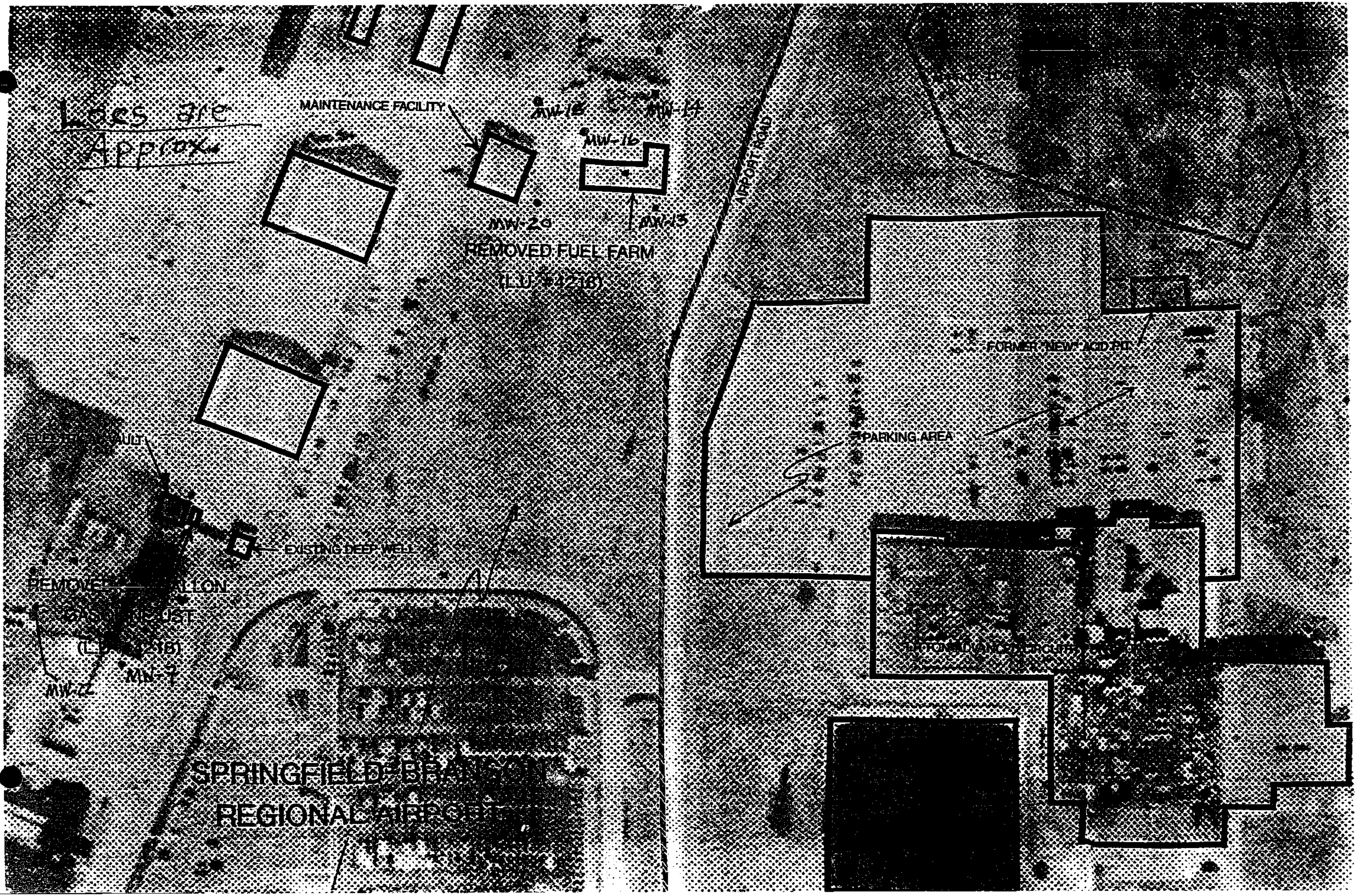
	B	T	E	X	MTBE	TPH	VC	TCE	PCE	DCE
MW-1	355	437	377	1,532		13,000	ND	ND	ND	ND
MW-2										
MW-3 (avg)	80	ND	11.5	20		1,050	ND	ND	ND	ND
MW-4										
MW-5	ND	ND	ND	ND		ND	ND	ND	ND	ND
MW-6										
MW-7	ND	ND	ND	ND		ND	ND	11	7	28
MW-8	ND	ND	ND	ND		ND	ND	ND	ND	ND
MW-9										
MW-10	ND	ND	ND	7		1,800	ND	ND	ND	ND
MW-11	458	ND	60	ND		1,400	ND	ND	ND	ND
MW-12	4,408	2,393	731	6,441		39,100	ND	ND	ND	ND
MW-13 (avg)	ND	ND	ND	ND		3,450	ND	1,288	ND	792
MW-14	157	ND	38	75		16,100	301	ND	ND	13
MW-15	5	ND	ND	ND		3,800	83	ND	ND	ND
MW-16	380	40	132	113		13,100	230	ND	ND	8
MW-17	1,179	101	152	861		12,800	ND	ND	ND	ND
MW-18	ND	ND	ND	ND		ND	ND	ND	ND	ND
MW-19										
MW-20	16	ND	17	35		6,400	135	ND	ND	26
MW-21	ND	ND	ND	ND		ND	ND	ND	ND	ND
MW-22	68	ND	ND	50		7,300	72	ND	ND	36
soils:										
MW-22	427	16	132	421		50,100	57	ND	ND	18
MW-23	7	23	623	2,931		116,700	ND	ND	ND	ND

NOTES:

All results are in µg/L or µg/kg (ppb in both cases).

(avg) = Results are an average of the primary and replicate samples.

= Sample not collected/analyzed.


Locs are Approx.
MAINTENANCE FACILITY
MW-18
MW-14
MW-16
MW-20
MW-15
REMOVED FUEL FARM
(LU #4216)
AIRPORT ROAD
FORMER "NEW" ACID PIT
PARKING AREA
EXISTING DEEP WELL
MW-7
MW-22
SPRINGFIELD-BRANSON
REGIONAL AIRPORT

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 4

CMT 50 years of service

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
2750 WEST WASHINGTON STREET
SPRINGFIELD, ILLINOIS 62702-3497
(217) 787-8050 FAX (217) 787-4163

LU#
2324

March 19, 1996

Mr. Jim Growney
Unit Chief
Leaking Underground Storage Tank Unit
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102-1076

Dear Mr. Growney:

Re: HWP File No. LU#4218
Springfield/Branson Regional Airport
Corrective Action Plan
CMT File No. 93410-01-09

Please find enclosed the Corrective Action Plan for the referenced site. Based on our work to date, we are recommending that this site be considered for natural attenuation along with ground water and site environmental monitoring. We are proposing this approach at this time primarily due to the presence of dense non-aqueous phase liquids which we believe have migrated onto the subject site from an adjacent former disposal facility.

Thank you very much for your consideration of this plan. Do not hesitate to contact our office if you have any questions or comments.

Very Truly Yours,
CRAWFORD, MURPHY AND TILLY, INC.

Allen O. Oertel

Allen O. Oertel, R.G. #0034

enc.

3.0 SUMMARY OF SITE CHARACTERIZATION REPORT

The SCR previously submitted to MDNR contained a total of 20 separate full sized sheets and attachments which were scaled maps and figures of the area and included site plans, results of soil sampling, vapor surveys, poteniometric contours and ground water analyses. Figures 2, 4 and 6 from that report are included herein for direct reference to features and landmarks. The remaining attachments are hereby incorporated by reference and will be briefly described. Figure 1 is a reproduction of a portion of the four USGS 7.5 minute topographic maps which cover the airport and adjacent areas and show the subject UST areas on the airport property and location of identified karst areas. Figures 2 and 3 are area maps of the UST vicinities and show the locations of the UST's in relation to the other landmarks and cultural features. Figure 4 is an aerial photograph of the airport vicinity which shows the fuel farm area and the adjacent previously identified TCE disposal facility. Figure 5 is a bedrock surface map of the area. Figures 6 and 7 are potentiometric surface maps of the subject areas. Figure 8 is a map of soil vapor survey results around the old fuel farm, previous to the tanks being removed. Figures 9 through 14 show soil benzene, total BTEX and TPH results from around the fuel farm and 500 gallon gasoline UST. Samples for these analyses were retrieved by soil borings. Figures 15 through 20 show dissolved ground water benzene, BTEX and TPH results from monitoring wells that were installed in proximity to the removed UST's.

The results indicate that there had been releases from the UST's with the majority most likely being from UST overfills and spills over the 43 years the system had been in use. Results of the soil vapor survey showed the highest vapor readings, not in the tank

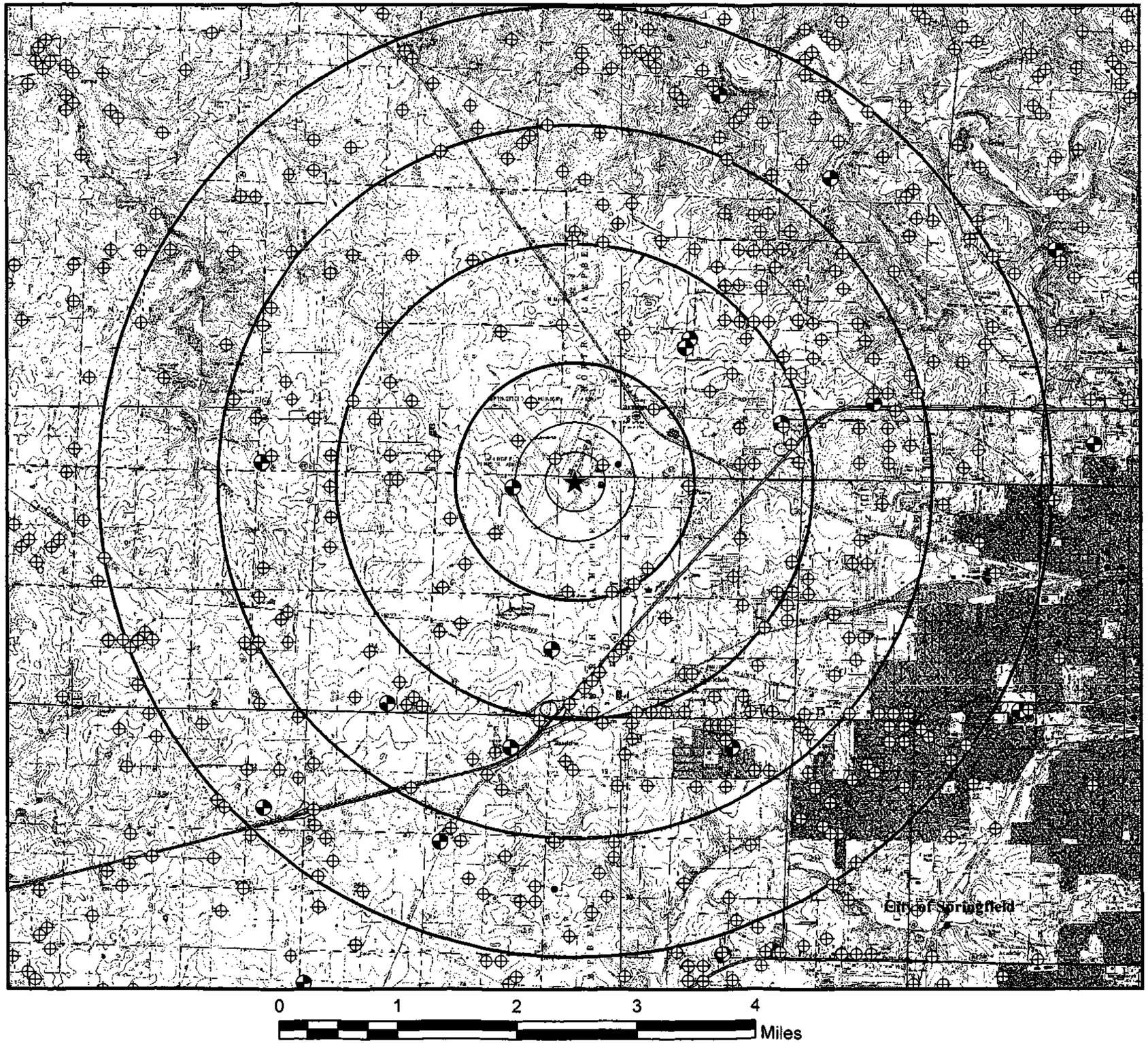
contamination. Given the depletion of oxygen in contaminated zone and the presence of an active hydrocarbon degrading bacteria, it was assumed that microbial degredation was at least one mechanism responsible for attenuation of released hydrocarbons.

Near the end of the SCR activities, 1-1-1 trichloroethene (TCE) was detected in ground water samples from several of the wells at the fuel farm site. Based on information supplied by MDNR, it was learned that several DNAPL compounds, including TCE, had been disposed of at the adjacent Litton Integrated Circuit Manufacturing facility. The DNAPL's were disposed of in percolation terraces located less than 150 feet from the airport boundary and approximately 300 feet from the removed fuel farm. In one of the wells at the fuel farm, MW-20, approximately 6 inches of free phase sinking product was measured in the bottom of the well. In addition to the TCE, several other chemicals, not apparently handled at either the airport or Litton, such as vinyl chloride were detected. However, it is believed that they are present as degredation products of more complex coumpounds such as TCE which were disposed of at Litton.

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 5

Four Mile Ma

Springfield Branson Regional Airport
5000 W. Kearney
Springfield, Greene County, MO

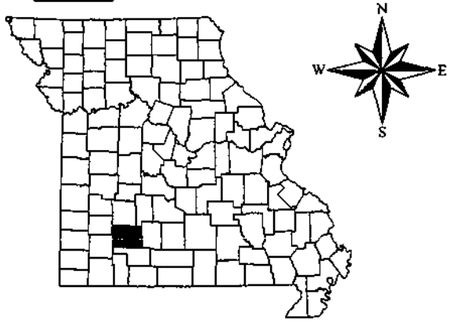


Legend

- ★ Springfield Branson Regional Airport
- ⊕ Domestic/Non-Community Well
- ◓ Public Well

Radius Distance (miles)

- 0.00 - 0.25
- 0.25 - 0.50
- 0.00 - 1.00
- 1.00 - 2.00
- 2.00 - 3.00
- 3.00 - 4.00



Created on: April 10 by Shelly Jackson

Base Map: USGS Topgraphic Map, 7.5 Minute Series Brookline Missouri Quadrangle.

Data Sources: Wellhead Protection, MoDNR Public Drinking Water Program

Missouri Department of
Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 6

Locational Data Collection Sheet

Department of Natural Resources

ALPD – Hazardous Waste Program

sheet is used to record required locational data. Attach the ***Optional Locational Data Collection Sheet*** if you need to record additional information.

1. Key Identifier	(Leave Blank)
2. Facility ID, Permit Number or Other Identifier	Springfield Branson Regional Airport
3. Facility or Site (Name and Physical Address)	Springfield Branson Regional Airport
5000 W. Kearney, Springfield, MO 65803	

4. Entity Type 3

(1) **FF** - Federal Facility | (2) **Gen** - Generator | (3) **TSD** - Treatment Storage and/or Disposal | (4) **SF** – Superfund (circled) | (5) **VCP** - Voluntary Clean-up | (6) **RR** – Resource Recovery | (7) **PST** - Petroleum Storage Tank

5. Unit of Measurement — Degrees/Minutes/Seconds | Decimal Degrees (circled) | UTM (Round to nearest Meter)

Latitude	37.242592 N	Longitude	93.382389	Time of Reading	1030

Latitude/Longitude conversion to decimal degrees:

Easting		Northing		Zone	15 (circled) or 16

6. Method of Determining Location (Indicate the method used to determine the locational data.)

Address Matching (Geocoding)	**Code**		Differential Post Processing	G3
Block/Group	A2		Precise Positioning Service	G4
Digitization	A6		Signal Averaging	G5 (circled)
Nearest Street Intersection	A4		Real Time Differential Processing	G6
Other Address Matching	AO		**Interpolation**	
Primary Street Name	A5		Aerial Photograph	I2
Street Centerline	A3		Topographic Map	I1
Zip Code Centroid (Center)	Z1		Satellite Imagery	I3
Census – 1990			Other Interpolation	IO
Block Centroid (Center)	C1		**Other**	
Block/Group Centroid	C2		Classic Survey	S1
Block/Track Centroid	C3		Land Survey	P1
Other Centroid	CO		Loran C Code	L1
Global Positioning System			Quarter Section Description	S2
Static Mode	G1		Unknown	UN
Kinematic Mode (Dynamic)	G2			

7. Make & Model of GPS Receiver (If Applicable): MARCH II | GARMIN 12XL | X OTHER (circled)
If other, specify: Trimble CE

8a. PDOP

8b. Locational Data Accuracy: +/- feet

9. Type of Locational Data Represented: Point (circled) | Line | Area

10. Horizontal Datum (Indicate the horizontal datum used to locate the collection site feature.)

(1) NAD27 (2) NAD83 (3) WGS84 (U) Unknown Other:

ST 6540 R 2324

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 9

GROUND WATER MONITORING

PROGRESS REPORT

SPRINGFIELD-BRANSON REGIONAL AIRPORT

LU#2324

5000 WEST KEARNEY STREET

SPRINGFIELD, MISSOURI

PREPARED BY:

PALMERTON & PARRISH, INC.

4166 WEST KEARNEY STREET

SPRINGFIELD, MISSOURI 65803

PHONE (417) 864-6000

FAX (417) 864-6004

AUGUST 1, 2003

Environmental Site Summary
INTERCONNECT TECHNOLOGIES
DIVISION OF LITTON SYSTEMS, INC.

4811 West Kearney
Springfield, Missouri

April 18, 2003

Submitted by:

SECOR International Incorporated
400 Bruns Lane
Springfield, IL 62702

TABLES

FIGURES

APPENDICES

SECTION 2.0
SITE DESCRIPTION AND BACKGROUND

This section presents a brief description of the site location, Facility, and history.

2.1 LOCATION

The Facility is located adjacent to the Airport, at 4811 West Kearney Street in Springfield, Missouri. The Site is bounded by Kearney Street to the south and the Airport Road to the West. The legal description of the Facility is the SE ¼, SW ¼, of Section 6, T 29 N, R 22 W, Brookline Quadrangle, Green County, Missouri. The location of the Facility is shown on the area map on Figure 1 and in Appendix A.

2.2 DESCRIPTION OF THE FACILITY

A site plan of the Facility is shown on Figure 2. The site plan shows current structures and features. Former waste management units, which have been closed and investigated, are also shown on the map.

The total area of the Facility is approximately 77 acres. The Facility building occupies approximately 207,000 square feet and is located in the southern part of the Facility property and consists of administrative offices, warehouses, and production area. An asphalt parking lot is located north of the building. A butyl-rubber-lined pond designed to contain water for emergency fire fighting is located southwest of the Facility building. The remaining property is undeveloped.

A Facility water supply well, completed to a depth of 1,390 feet, is located north of the Facility building, immediately adjacent to the maintenance building. This well has not been used in plant operations since 1968, when the facility was connected to the City of Springfield municipal water supply system. Wastewater generated from production activities at the Facility are treated on-site prior to discharge to the City of Springfield sanitary sewer system.

United States Environmental Protection Agency. Solids from the lagoon were disposed of in an off-site hazardous waste facility, and the lagoon was backfilled with clean soil. The former "original" acid pit, the former "new" acid pit, and the former sludge pit were reportedly closed in the late 1970's. No documents have been identified relating to the acid and sludge pit closures.

The former "C" lagoon was a lined lagoon which was used in the 1980's as a holding area for process wastewater when the wastewater treatment system was at capacity. The former "C" lagoon was filled in and the liner removed prior to the 1990 SCS Engineers (SCS) Site Investigation.

The former sanitary lagoon was used from the 1960's when Facility operations began, until approximately 1982, when the Facility connected to the city sewer. Due to a property transfer which occurred in 1975, the sanitary lagoon became part of the Airport property. The sanitary lagoon was filled in approximately 1982 when the Facility became connected to the city sewer.

2.4 PREVIOUS ENVIRONMENTAL INVESTIGATIONS AND ACTIVITIES

Numerous site investigations and actions have been undertaken at the Facility in conjunction with MDNR.

The 1988 Hazardous Waste Site Inspection Report by MDNR indicates that the on-site sludge pit and acid pit were both closed in the late 1970's with oversight of the project by MDNR Waste Management personnel from the Jefferson City office and MDNR Water Pollution Control personnel from the Springfield Regional Office. The statement concerning closures has been assumed to be in reference to the former "original" acid pit, the former "new" acid pit, and the former sludge pit. No closure documents for the waste units have been found to date.

were collected from the well. Groundwater samples were collected from the Facility monitoring wells.

2.5 GROUNDWATER REMEDIATION ACTIVITIES

Groundwater remediation activities have been undertaken at the Facility in the form of the IRM system and the soil vapor extraction (SVE) and high vacuum extraction (HVE) pilot tests. These items are discussed in further detail in the following subsections.

2.5.1 IRM System

Nine extraction wells were installed in 1994 as part of the IRM system. The extraction wells were located near the area of the former "new" acid pit, near the area of the former "original" acid and sludge pits, and adjacent to the west property boundary. The system was installed to inhibit offsite migration of impacted shallow groundwater.

Groundwater is extracted from the wells using a downhole pump. The water is then pumped to a central location and is then passed through an air stripper. After air stripping the water is combined with other treated wastewater and discharged into the city sewer. This system is currently active.

2.5.2 SVE/HVE Pilot Tests

A pilot soil vapor extraction (SVE) system was installed and operated at the Facility in the vicinity of the former "new" acid pit from 1998 until its shutdown in 2001. The SVE system was shut down for the installation and operation of a high vacuum (HVE) system. The installation of the HVE system was delayed because of the need to obtain access agreements, but the system is currently scheduled for start up in May-June 2003.

The Mississippian Age limestones and dolomites, which make up the minor aquifer at the Facility include the Burlington-Keokuk Limestone, the Elsey Formation, and the Pierson Limestone. The near surface rocks of the aquifer contain numerous channels created by the dissolution of the carbonate rock along faces of joints, fractures and bedding planes. The majority of the large scale karst features are formed in the Burlington-Keokuk Limestone formation and are cavernous. Much of the area is characterized by sinkholes. The minor aquifer encountered in core boring C-1, drilled at the site in 1997, was approximately 211 feet thick. The potentiometric maps created from the onsite wells screened in the minor aquifer indicate that the groundwater flow direction for the minor aquifer is predominantly toward the northwest at the Facility. Data collected from the 1995 Site Characterization Report for the Airport shows the groundwater flow direction for the minor aquifer on that property to also be toward the north-northwest.

A dye trace conducted January 19, 1989 from the sinkhole located on the southeastern portion of the Facility was received in the Ritter West Spring, which is located approximately 3 miles northeast from the Facility. Dye traces conducted August 23, 1988 from the sinkhole on the adjacent Airport property were received in the Fantastic Caverns Spring and the Bunge Spring which are located approximately 3 to 3.4 miles north of the Facility. A dye trace conducted September 25, 2001 by the Ozark Underground Laboratory was received in the Big Williams Spring, which is located approximately 3 miles north of the Facility.

2.7.2 The Ozark Confining Unit

The Ozark Confining Unit separates the overlying minor aquifer from the underlying major aquifer and generally impedes the flow of groundwater between the two aquifers. The Northview Formation consists of alternating beds of olive gray siltstone and dark gray, silty shale. In 1998 a core boring (C-1) was advanced to a depth of approximately 250 feet (bgs). The thickness of the confining unit encountered in C-1 was approximately 33 feet.

SECTION 3.0
OTHER POTENTIAL RESPONSIBLE PARTIES

As previously mentioned, the purpose of the Summary was also to identify potential sources within the Facility area that could be contributing to groundwater impacts. Information sources such as aerial photographs, public and private agency records, Facility and MDNR interviews, and environmental database searches were conducted to determine sites with the greatest potential for impact on groundwater. Using information from Environmental Data Resources, Inc. (EDR), an environmental database, a radius of 3.5 miles around the Facility generated information on other industries. The EDR is included as Appendix C. The industries are displayed on the map in Appendix A. Table 1 is a summary of listed wastes at select area industries. Facilities that have had the potential to impact groundwater near the Facility, or nearby springs, are discussed below:

3.1 FORMER MONO MANUFACTURING (NOW AARONS AUTOMOTIVE)

Mono Manufacturing Company (Mono) manufactured lawn mowers from 1962 to 1985. The location should be considered a possible source of both hydrocarbons and metals to the shallow groundwater and springs due to the past disposal and waste handling practices. The historical record clearly shows that wastes were disposed of into a sinkhole that feeds springs in question. In addition, an on-site well was present at the site but has not been sampled nor is it evident in the record that shallow groundwater has ever been sampled at the site. What is evident is that waste paint and other material was disposed of on the ground, into a sinkhole and or burned at the site. Benzene and toluene were found in the groundwater in wells near the site. Lead and chromium contamination in the soils led to the removal of 1,846,500 lbs of contaminated soil. The former Mono Manufacturing site is located approximately 0.5 miles east-northeast from the Facility and is located south approximately 3.4 miles from Bunge Spring, 3.1 miles from Big William Spring, and 3 miles from Fantastic Caverns Spring.

2000 CY of soil was land-farmed at the Airport subsequent to UST removal. An Airport investigation reported approximately 6 inches of DNAPL in Airport monitoring well MW-20. The report indicates that the DNAPL is TCE. Figure 5 is a map showing the Airport monitoring wells and the adjacent Facility property. The Airport is located directly west of the Facility and is located southwest approximately 3.9 miles from Bunge Spring, 3.8 miles from Big Williams Spring, and 3.7 miles from Fantastic Caverns Spring.

3.5 KERR MCGEE CHEMICAL CORPORATION

The site has been undergoing RCRA corrective actions for a number of years. The compounds of concern are related to creosote. Karst features are located near the site, and Vich Spring is located nearby. Vich Spring drainage (losing stream) has been shown via dye tracing to connect with Ritter East and Ritter West springs. PNA's were detected in Vich Spring in 1985 along with 110 ug/L of PCE. PCE was also detected in a drainage culvert by Clifton Street at 160 ug/L in 1985. Kerr McGee has performed active removal of creosote in the groundwater for a number of years at their site. Groundwater quality reports were reviewed dating back to 1988 with no reference to chlorinated compounds ever analyzed for in groundwater. The Kerr McGee site is located approximately 2.4 miles southeast of the Facility.

3.6 SAFETY KLEEN

Safety Kleen operates a RCRA Part B permitted facility engaged in the acceptance, storage, repacking and transportation of various wastes including hazardous waste. A release of VOC's to the groundwater is documented at the site. 1,1- DCA, cis 1,2- DCE and Vinyl Chloride have all been detected in the shallow groundwater perched atop bedrock at the site. A groundwater pump and treat system was operated at the site and is currently shut down. It currently appears the site is being remediated via natural attenuation. Based upon a review of available documents, principal contaminants of concern include benzene and other related compounds. Compounds used at Safety Kleen include waste codes F002, D039, D040, D007 and others. References were

Fulbright Landfill is located approximately 4.3 miles northeast of the Facility and is located east-southeast approximately 3.2 miles from Bunge Spring, 2.3 miles from Big Williams Spring, and 2.5 miles from Fantastic Caverns Spring. The Sac River Landfill is located approximately 3.5 miles northeast of the Facility, and is located east approximately 1.5 miles from Bunge Spring, .6 miles east of Big Williams Spring, and .8 miles from Fantastic Caverns Spring.

Soil investigations of this area have revealed the presence of Cu, Pb, 1,1-DCE, 1,1-TCA, TCE, and methylene chloride in concentrations above the CALM soil objectives[1]. The area of the former percolation terrace is approximately 81,708 ft^2.

- **Former "A" and "B" Lagoon**

Use of the percolation terrace ceased when the "A" and "B" lagoon was constructed in the mid-1970's to handle wastewater discharge. The "A" and "B" lagoon removed metals from the water by using a 1 foot layer of limestone that would raise the pH of the water. In 1975, the Facility received a Letter of Approval from MDNR for the operation of a no discharge wastewater system using the "A" and "B" lagoon, which included land application of the wastewater. In 1982, the Facility was connected to the City of Springfield's sanitary sewer system. The same year the "A" and "B" lagoon was closed with the oversite and approval of the USEPA. Solids from the lagoon were disposed of in off-site hazardous waste facility, and the lagoon was backfilled with clean soil.

Soil investigations of this former lagoon since it was backfilled have not revealed the presence of contaminants of concern above MDNR soil objectives[1]. The area of the former "A" and "B" lagoon is approximately 188,713 ft^2.

- **Former Sludge Pit**

Used from early in the Facility history up to the 1970's, the Pit was closed in the late 1970's. Soil investigations of this former lagoon since it was backfilled have revealed the presence of Cu, Pb, 1,1,1-TCA, TCE, methylene chloride, and 1,2 DCP at concentrations above CALM soil objectives[1]. The area of the former sludge pit is approximately 3,111 ft^2.

---

[1] The analytical results were compared to the CALM Tier 1 values for C_{leach} or Scenario C, depending upon which had the lower objective.

The soils surrounding the underground lines connecting the Facility plant to the former sanitary lagoon (Airport property), the percolation terrace, the former "C" lagoon, and the former "A" and "B" lagoon may have residual impacts, depending upon the integrity of the lines. The sewer line or fill (or bedding) around the line could have also acted as a conduit for contaminant transport.

- **"C" Lagoon**

The "C" lagoon was a lined lagoon used as an overflow basin to hold untreated wastewater for treatment if the treatment facility was at capacity. The lagoon does not currently exist. No records of closure were found for this lagoon. Since the lagoon was used to hold untreated wastewater it is possible that the soils in that area are impacted with VOCs and metals. The approximate area of "C" lagoon is 12,454 ft^2.

- **Subfloor under the Facility plant building**

Historical information suggests that soils beneath the Facility plant building may have been impacted by chlorinated solvents and metals. Spills of acid, wastewater, and other liquids could have been released historically under the facility plant building floor through the floor drains or other means. The approximate area of the subfloor in question is approximately 58,640 ft^2.

- **Decorative pond**

There is a possibility that releases from the Facility building might have migrated to the decorative pond. The area of the decorative pond is approximately 48,400 ft^2.

Five potential source areas were identified during the Summary, which do not appear to have been fully investigated. These source areas include:

- Former sanitary lagoon,
- Underground lines from the Facility plant to the former sanitary lagoon, the percolation terrace, the former "C" lagoon, and the former "A" and "B" lagoon.
- Former "C" lagoon,
- Subfloor beneath portions of the Facility building, and
- Decorative pond

Previously investigated source areas which may require further investigation include:

- Former "A "and "B" lagoon,
- Former empty drum storage area, and
- The former percolation terrace
- The former "original" acid pit
- The former sludge pit, and
- The former "new" acid pit

Groundwater samples collected from IW-1 in July 1995 from intervals below the confining unit were impacted with TCE. These impacts could either be due to a downward migration of contaminants through fractures in the lithology or the well might be acting as a vertical conduit. Given its proximity to potential source areas, consideration should be given to abandoning IW-1 in accordance with MDNR regulations. It is unknown if the two deep wells on the Airport property are impacted.

REMEDIAL INVESTIGATION SUMMARY REPORT – PHASE II

INTERCONNECT TECHNOLOGIES
DIVISION OF LITTON SYSTEMS, INC.

4811 West Kearney
Springfield, Missouri

April 8, 2005

Submitted by:

SECOR

SECOR International Incorporated
400 Bruns Lane
Springfield, IL 62702

The total area of the Facility is approximately 77 acres. The Facility building occupies approximately 207,000 square feet and is located in the southern part of the Facility property. The Facility building includes administrative offices, warehouse, and production areas. An asphalt parking lot is located north of the building. A butyl-rubber-lined pond designed to contain water for emergency fire fighting is located southwest of the Facility building. The remaining property is undeveloped.

GENERAL HISTORY

The Facility property was originally purchased as three different parcels with the first parcel being purchased in 1963. Prior to that, the property appeared to be primarily undeveloped and used for agriculture. Aerial photographs dated 1954, 1975, 1980, 1985, and 1996 are included in Appendix F.

Wastes historically generated from Facility process operations included chlorinated solvents, acids, and metals. These wastes were discharged to various waste management units located on the Facility property. These waste management units are no longer in operation. These units include the Former Percolation Terrace, the Former "A" and "B" Lagoon, the Former "Original" Acid Pit and Former Sludge Pit, the Former "New" Acid Pit, the Former "C" Lagoon, and the Former Sanitary Lagoon (reference Figure 2).

The Former Percolation Terrace, located north of the parking lot, was used for process wastewater disposal from 1971 to 1975. The Percolation Terrace contained a slotted subsurface discharge pipe that consisted of a series of 180-degree elbows connecting parallel sections of slotted pipe.

As Facility production increased and the Percolation Terrace became inadequate for wastewater disposal, use of the Percolation Terrace ceased, and wastewater was discharged to the newly constructed "A" and "B" Lagoon (constructed in mid-1970's). The Percolation Terrace removed metals from the water by the cation exchange capacity of the clay rich soils. The "A" and "B" Lagoon removed metals from the water by using a 1- foot layer of limestone that would raise the pH of the wastewater. The "A" and "B" Lagoon consisted of two cells ("A" cell and "B" cell) separated by a common berm. In 1975 the Facility received a Letter of Approval from

The Springfield, Missouri area has a humid climate with relatively mild winters and warm summers. The annual average temperature is 56.2 ° Fahrenheit. The average annual precipitation is 39.70 inches.

GEOLOGY

The area around Springfield, Missouri lies within the Springfield-Salem Plateaus section of the Ozark Plateau physiographic province, Interior Highlands Division. Surficial soils in the Springfield Plateau are primarily comprised of a cherty clay residuum. The surficial deposits are underlain by cherty limestone of Mississippian age. Rock units of Mississippian age (from youngest to oldest) consist of the Warsaw Formation, Burlington-Keokuk Limestone, Elsey Formation, Pierson Formation, Compton Formation, and Bachelor Formation. Underlying rock units of Ordovician age consist of the Cotter Dolomite, Jefferson City Formation, and Roubidoux Formation. Appendix N includes a generalized geologic column of the Springfield, Missouri area and Appendix G contains a regional map showing the location of area springs, municipal wells, and select private wells. Dye trace vectors (completed from previous hydrogeologic studies unrelated to the Site) are also displayed on the map.

SITE HYDROGEOLOGY

Two major aquifer systems, separated by a confining unit, are present in the Springfield area. From stratigraphically youngest to oldest are: the Springfield Plateau Aquifer (shallow aquifer), the Ozark Confining Unit (Northview Formation), and the Ozark Aquifer (deep aquifer).

The Springfield Plateau Aquifer

The Springfield Plateau Aquifer is composed of cherty limestones of Mississippian age, stratigraphically above the Northview Formation (the Ozark confining unit). Aquifer testing conducted during the 1994 Phase I Remedial Investigation (conducted by SCS) indicates that groundwater in the unconsolidated overburden material and in the bedrock above the confining unit behave hydraulically as one aquifer at the Facility. The upper part of the aquifer consisting of the cherty clay overburden material varies from approximately 10 to 65 feet below ground surface (bgs) in the vicinity of the Facility. The unconsolidated interval in itself is not considered to be a significant aquifer in the region due to low water yields in wells screened in that interval.

Private wells exist within a three mile radius of the Facility. Some of these wells are cased through the Northview Formation. Some of the older wells may be open hole through or across the Northview Formation. (NOTE: the Ozark Aquifer is sometimes referred to as the deep aquifer or major aquifer in previous reports.)

PREVIOUS ENVIRONMENTAL INVESTIGATIONS/ REMEDIAL ACTIVITIES

Several environmental investigations and remedial activities have been performed at the Facility in conjunction with MDNR. Appendix J includes a chronology of environmental investigations at the Facility.

The 1988 Hazardous Waste Site Inspection Report by MDNR indicates that the "on-site Sludge Pit and Acid Pit" were both closed in the late 1970's with oversight by MDNR Waste Management personnel from the Jefferson City Office and MDNR Water Pollution Control personnel from the Springfield Regional Office. The statement concerning closures has been assumed to be in reference to the Former "Original" Acid Pit and the Former Sludge Pit. No closure documents for the waste units have been located to date.

In May 1990 an environmental assessment (Assessment) was performed at the Facility by SCS. The purpose of the Assessment was to identify areas of potential environmental concern. Assessment activities included collection of surface and subsurface soil samples and groundwater samples.

From December 1990 to January 1991, additional site assessment work was done at the Facility to further evaluate site environmental conditions. The work included conducting resistivity surveys at the Former Sludge Pit and the Former "New" Acid Pit for the purpose of delineating these features, performing a soil gas survey, collecting surface and subsurface soil samples near the on-site wastewater treatment system, installing seven additional monitoring wells screened in the overburden, and sampling all of the on-site monitoring wells.

Contaminants of concern for soil and groundwater which were identified at the Facility consisted of: arsenic (As), chromium (Cr), copper (Cu), lead (Pb), cyanide (CN), mercury (Hg), cadmium (Cd), 1,1,2-Trichloroethane (1,1,2-TCA), 1,1-Dichloroethene (1,1-DCE), 1,2-Dichloropropane (1,2-DCP), 1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane (1,1,1-TCA), 1,1,2,2-

FORMER SANITARY LAGOON

3
SI 36

4
SL 01

2,600 FT2

1300
SL 05

SL 12

SL 06

GT 01

100 PPB

87,000 PPB

860
SL 02

100
SI 34

175000
SI 35

SL 13

SL 11

BASS PRO HANGAR

SL 10

SL 14

13,500 FT2

SL 03

17
SL 04

GT 03

SL 08

GT 02

43
SL 09

3
SI 33

LEGEND:

LABORATORY TCE DETECTIONS 4 FEET TO TD

TCE VALUES IN PPB

SL BORING/PHASE II

GEOTECH BORING/PHASE II

SI BORING/PHASE I

TCE VALUE ABOVE 100 PPB

TCE VALUE ABOVE 87,000 PPB

0 15 30
SCALE IN FEET

N

DESIGNED BY:	MGD
DRAWN BY:	MWB
APPROVED BY:	MGD
DATE:	1-14-05

SECOR

FORMER SANITARY LAGOON. SOIL TCE CONCENTRATIONS ABOVE 100 PPB AND 87,000 PPB. 4 FEET TO TOTAL DEPTH.

INTERCONNECT TECHNOLOGIES DIVISION, LITTON SYSTEMS, INC.
4811 WEST KEARNEY, SPRINGFIELD, MO 65803

FIGURE 35

THE HISTORY OF THE SPRINGFIELD AIRPORT (1916-1978):

A Summary and Research Guide

Russ Williams

Commissioned by Robert Hancik, director of aviation, for the City of Springfield, Missouri and the Springfield Municipal Airport, July 21, 1978

IV. The New Airport (1942 - 1978)

On September 1, 1942 Lester Cox addressed City Council requesting a special election for a $350,000 bond issue to build a new airport. In October the issue carried.[9] Cox had long been a supporter of the city airport. Work began in early 1944. The U. S. Army Corps of Engineers supervised construction on a site seven miles northwest of the city. Springfield bought 840 acres of land for $124,199. Federal government put over $1.5 million into the project. March 6, 1945 voters approved $150,000 in bonds to complete the work. This was all carried on in support of the war effort.[10]

June 1945 the old terminal was finished. July 2, 1945 the new airport started service, a month before the war would end. It was formally dedicated Nov. 3 of that year. The Navy put on an air show to mark the occasion. Facilities included two concrete runways, a sewage disposal plant, a well pump and pumphouse, concrete aprons, automobile parking lot, two large hangars, and a temporary terminal administration building. At first the airport was used by the military for hospital aircraft, and later turned over to the city.[11] Originally called Springfield Greene County Airport, the name changed soon afterward to Springfield Municipal Airport. After a disagreement over financial responsibilities, Greene County stepped out of the administration and the city assumed full control. The airport was removed from the Park Board and given its own separate administration.

Commercial airlines came into Springfield to begin service after

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 13

September 19, 1990

TO WHOM IT MAY CONCERN:

The map provided depicts the Air Midwest Maintenance Facility located at Springfield Regional Airport, 5000 W. Kearney, Springfield, MO 65803. The telephone number is 869-0406 or Station Line #52.

We do have several hazardous chemicals on site. In the event of an emergency, Air Midwest would like the local fire department, police and ambulance services to be informed. Enclosed also are copies of Material Safety Data Sheets of hazardous chemicals we use.

Feel free to contact me about any questions you might have.

Sincerely,

Tom Jackalone
Base Manager - SGF

Tom Jackalone
Base Manager
Maintenance

air midwest

5000 Kearney Rd.
Hangar #1
Springfield, MO 65803
(417) 869-0406

MATERIAL SAFETY DATA SHEET

3058

ICI Americas Inc.
Wilmington, Delaware 19897
Phone (24 hr.) Technical: (302) 575-3000
Medical: (800) 327-8633

Interim
Rev.: A
40602F
Date: 11/28/88

SECTION 1 NAME & HAZARD SUMMARY

Material name: GENKLENE® LV

SECTION 2 INGREDIENTS

	%	TLV (ACGIH)
1,1,1-Trichloroethane (CAS 71-55-6)	>95	350 ppm
t-Butyl alcohol (CAS 75-65-0)	1.9	100 ppm
Ethylene dichloride (CAS 107-06-2)	<1.0	10 ppm

All ingredients appear on the EPA TSCA Inventory. Ingredients not precisely identified are proprietary or nonhazardous. Values are not product specifications.

SECTION 3 PHYSICAL DATA

Appearance and odor: Volatile liquid
Boiling point: 165°F, 74°C
Vapor pressure (mm Hg at 20°C): 100
Vapor density (air = 1): 4.5
Solubility in water: Insoluble
pH: No data
Specific gravity: 1.31
% Volatile by volume: 100

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method): Does not flash (by standard procedures)
Autoignition temperature: 932°F, 500°C
Flammable limits (STP): 9-16%

Extinguishing media:
Not applicable. Use media suitable for surrounding fire. Use water spray to cool fire-exposed containers and equipment.

Special fire fighting protective equipment:
Self-contained breathing apparatus with full facepiece and protective clothing if involved in a fire of other materials.

Unusual fire and explosion hazards:
1,1,1-Trichloroethane can be ignited with high-intensity sources of heat, such as some sparks and flames, or at high temperatures and pressures.

SECTION 5 REACTIVITY DATA

Stability:

Stable under normal conditions. Avoid contact with aluminum equipment such as tanks, pumps and fittings. Aluminum-catalyzed decomposition gas can rupture confined areas in the equipment with explosive force. Decomposition will occur on exposure to red hot surfaces and high intensity ultra violet light.

Incompatibility:

Avoid mixing with caustic soda, caustic potash or oxidizing materials. Strong oxidizers may form explosive mixtures in confined areas. Reacts violently with alkali and alkaline earth metals such as sodium, potassium and barium.

Hazardous decomposition products:

Thermal decomposition: hydrogen chloride and traces of phosgene
Chemical decomposition: hydrogen chloride

Hazardous polymerization:

Will not occur.

SECTION 6 HEALTH HAZARD ASSESSMENT

General:

No toxicity information is available on this specific preparation; this health hazard assessment is based on information that is available on the properties of its components.

Ingestion:

The acute oral LD_{50} in rat is reported to be 10.3 g/kg for 1,1,1-trichloroethane. Relative to other materials, a single dose of this product is practically nontoxic by ingestion. Swallowing an excessive amount can cause gastrointestinal disturbances and central nervous system depression.

Eye contact:

Eye irritation will probably develop following human contact with liquid or high vapor concentrations of this material.

Skin contact:

Short contact periods with human skin are not usually associated with skin irritation; repeated and/or prolonged contact can result in skin irritation.

Skin absorption:

Systemically toxic concentrations of this product will probably not be absorbed through the skin in man.

Inhalation:

At very high levels, human fatalities have occurred due to central nervous system depression and cardiac sensitization to circulating epinephrine-like compounds following exposures to 1,1,1-trichloroethane. If exposed person survives, recovery is generally rapid and complete.

Other effects of overexposure:

High atmospheric concentrations of 1,1,1-trichloroethane can induce central nervous system depression, respiratory irritation, dizziness, nausea, headache, loss of coordination and unconsciousness followed by

Ventilation:
If needed, use local exhaust to minimize exposures. Ventilate low-lying areas such as sumps or pits where dense vapors may collect.

Respiratory protection:
Use MSHA-NIOSH approved respirator for organic vapors. For high or unknown concentrations and oxygen-deficient atmospheres, use MSHA/NIOSH approved positive pressure air supplied respirator.

Protective clothing:
Impervious gloves and apron.

Eye protection:
Chemical tight goggles; full faceshield in addition if splashing is possible.

Other protective equipment:
Eyewash station and safety shower in work area.

SECTION 9 SPECIAL PRECAUTIONS OR OTHER COMMENTS

Special precautions or other comments:
Prevent skin and eye contact. Observe TLV limitations. Avoid breathing vapors or aerosols. Avoid contact with flames and hot surfaces. Avoid smoking when vapor is present.

SECTION 10 REGULATORY INFORMATION

TSCA (Toxic Substances Control Act) Regulations, 40CFR 710:
All ingredients are on the TSCA Section 8(b) Inventory.

OSHA (Occupational Safety and Health Administration) Hazard Communication Standard (29 CFR 1910):
Physical hazards: None.
Health hazards: Irritant (skin, eye, respiratory passages) Inhalation (TLV)

DOT (Department of Transportation) Regulations (49 CFR 172):
To be determined.

RCRA (Resource Conservation and Recovery Act) Regulations (40 CFR 261):
SEE SECTION 7, SPILL OR LEAK PROCEDURES.

CERCLA ("SUPERFUND" Comprehensive Environmental Response, Compensation and Liability Act) and SARA (Superfund Amendments and Reauthorization Act) Regulations (40 CFR 355, 370, 372):
To be determined.

Precautionary Label Information:
To be determined.

State Regulations:
California Proposition 65: This product contains a chemical known to California to cause cancer.

WHMIS (Canadian Workplace Hazardous Materials Information System):
Class D, Division 2-- Toxic (CPR 54-58).

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: M1064

PRODUCT NAME: 1,1,1-TRICHLOROETHANE-104

Diamond Shamrock
Chemicals Company

MSDS DATE OCTOBER 31, 1988

24 HOUR EMERGENCY PHONE (214) 922-2700

I. PRODUCT IDENTIFICATION

3 HEALTH HAZARD, 1 FIRE HAZARD, & 0 REACTIVITY rating based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974)

MANUFACTURER'S NAME AND ADDRESS: Diamond Shamrock Chemicals Company, Chlor-Alkali Division, 351 Phelps Court, P.O. Box 152300, Irving, Texas 75015-2300

CHEMICAL NAME: 1,1,1-Trichloroethane CAS NUMBER 71-55-6

SYNONYMS/COMMON NAMES: Methyl Chloroform

CHEMICAL FORMULA: CH_3CCl_3

DOT PROPER SHIPPING NAME: 1,1,1-Trichloroethane

DOT HAZARD CLASS: ORM-A

DOT I.D. NUMBER: UN2831 HAZARDOUS SUBSTANCE: NA

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	HAZARD DATA	CAS NUMBER	%
1,1,1-Trichloroethane	PEL = 350 ppm 8hr TWA TLV = 350 ppm 8hr TWA	71-55-6	>95
Stabilizers			<5
1,2-Butylene Oxide	40 ppm has been suggested	106-88-7	
Diethylene Ether	TLV = 100 ppm 8hr TWA	123-91-1	
Nitro Methane	TLV = 100 ppm 8hr TWA (See Section V)	75-52-5	

The materials in this product are listed in the TSCA Inventory.

III. PHYSICAL DATA

BOILING POINT @ 760 mm Hg: 74.1°C
FREEZING POINT: -36.9°C
VAPOR PRESSURE: 125mm Hg @ 25°C
SPECIFIC GRAVITY (H_2O=1): 1.32
APPEARANCE AND ODOR: Clear, colorless liquid with a chloroform-like odor
pH: NA

VAPOR DENSITY (Air=1): 4.55
% VOLATILES BY VOL.: 100
EVAPORATION RATE (BuAc=1): 0.37
SOLUBILITY IN H_2O % BY WT: 0.07

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None (TCC) AUTOIGNITION TEMPERATURE: 485°C (905°F)

FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: 15.0 LOWER: 7.5

EXTINGUISHING MEDIA: Fires involving this product are unlikely, but should one occur, it may be controlled by carbon dioxide, dry chemicals or water spray.

CAS = Chemical Abstract Service Number
PEL = OSHA Permissible Exposure Limit
TLV = TLV®, ACGIH Threshold Limit Value, Current

N/A = No relevant information found or not available
NA = Not Applicable

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Under normal conditions this material is stable.

INCOMPATIBILITY: Avoid contacting this product with strong alkalies (such as sodium hydroxide), alkali metals, open flames, and electrical arcs. Uninhibited or lightly inhibited 1,1,1 Trichloroethane should not be used in contact with aluminum or zinc or their alloys.

HAZARDOUS DECOMPOSITION PRODUCTS: At high temperatures, this product decomposes to give off hydrogen chloride gas and small quantities of other toxic and irritating vapors such as phosgene.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: Material is not known to polymerize.

VII. ENVIRONMENTAL PROCEDURES

SPILLS OR RELEASES: Leaks should be stopped. Spills should be contained and cleaned up immediately. Large spills should be removed by using a vacuum truck. Smaller spills may be soaked up with compatible absorbent materials which should then be placed in approved containers, labeled, and stored in a safe place out of doors to await proper disposal. The spill area should then be flushed with water. All rinsate should be removed and placed in approved containers to await proper treatment or disposal. Spills on areas other than pavement, e.g., dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing.

DISPOSAL OR STORAGE: The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations. Package, store, transport and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent properly permitted contractors. Ensure that all responsible federal, state and local agencies receive timely and proper notifications of the spill and disposal of waste.

VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

VENTILATION REQUIREMENTS: Where engineering controls are not feasible use adequate local exhaust ventilation. Local exhaust ventilation should be used wherever mist, spray or vapor may be generated.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: Respiration protection is not required under normal use. However, use a NIOSH/MSHA approved respirator following manufacturer's recommendations where vapor, mist, or spray may be generated.

EYE: Face shield and goggles or chemical goggles should be worn.

GLOVES: Impervious gloves should be worn. Gloves contaminated with the product should be discarded. Polyfluorinated polyethylene has been suggested.

OTHER CLOTHING AND EQUIPMENT: Standard work clothing. Standard work shoes; discard shoes if cannot be decontaminated. Store contaminated clothing in well ventilated cabinets or closed containers. Wash contaminated clothing and dry before reuse. Shower and eyewash facilities should be accessible.

MONITORING EXPOSURE

BIOLOGICAL:
Analysis of breath following exposure has been suggested.

PERSONAL/AREA:
The NIOSH P&CAM (Method) Numbers 127 and 5329 are applicable.

N ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Divisi.
Division of Geology and Land Survey
Division of Management Services
Division of Parks, Recreation,
and Historic Preservation

Greene County/ HzW
General

Dept. of Natural Resources
Southwest Regional Office
318 Park Ctrl. East, Ste. 500
Springfield, MO 65806

LOW #90-SW.022

September 19, 1990

Certified Mail
P 331 284 670

Mr. Tom Jackalone, Base Manager
Air Midwest
5000 Kearney Road
Springfield, MO 65803

Dear Mr. Jackalone:

This is regarding the September 18, 1990, Hazardous Waste Compliance Inspection conducted at the Air Midwest facility in Springfield, Missouri. The inspection was conducted by Charles Kroeger of this office pursuant to the Missouri Hazardous Waste Management Law and Regulations and Federal Resource Conservation and Recovery Act of 1976, as amended.

A copy of the inspection check list which was discussed with you at the conclusion of the inspection, is enclosed. The inspection record and checklist describes the activities at the facility and the wastes which are generated.

Following is a presentation of the violations which were observed during the inspection and the references for those violations. Any Federal regulations referenced have been adopted by reference in the state regulations or are those which the state has agreed to enforce.

1. Failure of a generator to make arrangements with local authorities to familiarize them with the hazardous waste and its properties; 10 CSR 25-5.262(1) referencing 40 CFR 262.34(a)(4) further referencing 40 CFR 265.37.

   The facility had submitted information to the fire department required under the Right-To-Know requirements but had not made arrangements to familiarize the other emergency agencies of the properties of the hazardous waste handled at the facility and the associated hazards. Emergency agencies would include the police, medical response teams and the hospital.

3. Full sized placards should be available at the facility for the transporter if the vehicles do not have the permanently attached metal placards. The placards presently at the facility are smaller than those required by the DOT;

4. The location of the remainder of the spill control equipment should be provided near the phone even though the personnel are aware that it is in the parts room. The cart containing the absorbent material, brooms, etc. is moved to the work area within the facility so it need not be included;

5. Care should be taken to minimize spillage of hazardous wastes when transferring it to the storage/accumulation container. There was some liquid on top of the tote at the time of the first visit but it was removed prior to the return inspection.

To demonstrate a return to compliance, Air Midwest must submit the following documentation by October 23, 1990:

1. A copy of the information made available to the local emergency agencies and description of any other actions taken to familiarize them with the hazardous wastes handled at the facility;

2. Certification that the marking and labeling requirements will be met on all containers of hazardous waste stored at the facility; and

3. Certification that the beginning date of accumulation will be provided on all containers of hazardous waste.

The aforementioned documentation is to be submitted to this office with a copy sent to Mr. Bruce Martin, Department of Natural Resources, Waste Management Program, P.O. Box 176, Jefferson City, Missouri, 65102.

If you have any questions, please contact Charles Kroeger of this office.

Sincerely,

SOUTHWEST REGIONAL OFFICE

for John R. Nixon, P.E.
Regional Administrator

JRN/clk

enc.

cc: Mr. Bruce Martin, WMP

SMALL QUANTITY GENERATOR CHECKLIST

RECORDS INSPECTION

GENERAL

- (✓) Registered as a HW Generator-260.380(1)(1) RSMo
- (✓) Utilizes authorized HW TSD, or RR facility-260.380(1)(7) RSMo
- (✓) Facility does not operate as an TSD-260.390(1) RSMo
- (✓) Facility determines if waste = hazardous - 262.11

WASTE OIL 10 CSR 25-11.010

did with [illegible] waste

- ( ) Registered as waste oil generator if gen./accum. 220 lb/mo-11.010(2)(A)
- ( ) Written waste oil contract maintained-11.010(4)(A)
- ( ) Waste oil properly stored, transported and disposed of-11.010(1)(D)
- ( ) RR cert. for energy recovery or reclamation on-site-9.010

MANIFESTS 10 CSR 25-5.262(2)(B) & 40 CFR 262.20

- (✓) Facility uses manifest system-260.380 RSMo, 5.262(2)(B)
- (✓) Records maintained for a 3 year period-262.40(a)
- (✓) Generator's MO and EPA I.D. Numbers-5.262(2)(B), 262.12
- (✓) Manifest filled out in accordance with instructions - 262.20, 5.262(2)(B)1
- (✓) Manifest document, ID, & consecutive shipment numbers - 5.262(2)(B)2.A
- (✓) Generator's name, address, phone #-262.20
- (✓) All transporter's names, phone #, MO and EPA I.D. #'s 5.262(2)(B)2, 262.20
- (✓) Designated facility name, address, phone, MO and EPA I.D. #, DOT shipping name, Hazard Class and I.D. # (RQ-if required)-262.20/49 CFR 172
- (✓) Containers, Quantity and Unit wt/vol being shipped properly designated-262.20
- (✓) Proper certification - 262.20
- (✓) Manifest properly signed and dated-262.20
- (—) Out of state manifests have all required MO information 5.262(2)(B)4.A
- (✓) No manifest continuation sheets are used-5.262(2)(B)1
- (✓) Manifest returned within 35 days-5.262(2)(B)6.B or exception generator report submitted within 45 days-5.262(2)(D)2.C; 262.42(b)
- (✓) Completed Manifests sent to DNR QTRLY-5.262(2)(B)6.A
- (✓) Summary Manifest Reports sent to DNR QTRLY-5.262(2)(B)1
- (—) Waste reclaimed under a contractual agreement (type, frequency, and shipping vehicle ownership)-262.20(e)(1)
- (—) Generator maintains a copy of the contractual agreement onsite-262.20(e)(2)
- (✓) Proper "Land-Ban" notification/certification, (EPA HW #, treatment standards, manifest #, waste analysis data, etc.) sent with manifests and retained on-site. - reference 268.7

PREPAREDNESS AND PREVENTION-265 Subpart C & 262.34(d)

- (●) Arrangements with local emergency agencies-265.37
- (✓) Emergency coordinator(s) on premise or on call-262.34(d)

foreman on duty

paint filters – need to be tested when spent

been in operation a few weeks

solvent rags to American Linen

COMMENTS:

B+B 3100 – cleaning compressor in air crafts

1,1,1- Trichloroethane – Ultrasonic vapor degreaser

very little waste –

MEK – glue removal & dilute glue

dilute sealer –

wipe down cowlings

hand cleaner

Toluene – stripping boots on composite leading edge (Kevlar & Nomex fabr.)

window repairs

Alcohol – degrease

clean electrical plugs (Cannon)

wash parts

1986 degreaser – wheel wells – flat cokes

Biodegradable – to sewer

SK – clean engine parts

component cleaning – landing gear to props

OAKITE RUSTRIPPER – evaporates – 3 open bin

when clean out – place in waste tank

Mineral Spirits – degreasing engine in winter time – replacing

MEK in ~~open~~ one gallon container – Closed

from cleaning paint brushes, spray guns

acetone – used to thin paints

catalyst for paint

FOR F-SOLVENT AND DIOXIN WASTES

Facility: Air Midwest
5000 W. Kearney
Springfield, Mo

Date: 9-18-90

Missouri I.D.#: 00126

Facility Representative: Jeff Kelly / Tom Tackaberry

EPA I.D.#: MOD063042234

Title: Foreman / Mgr.

Phone #: 417-869-0406

Facility Status:
- Large Quantity Generator
- Small Quantity Generator [X]
- Treatment/Storage Facility
- Land Disposal Facility
- Permitted

A. GENERAL

1. Specify the wastes handled by the facility which are subject to the land disposal restrictions:

	EPA Waste Code (F001)	Waste Description
a.	F005	MEK
b.		
c.		
d.		

Are these wastes properly classified? Yes ✓ No ____

2. Which, if any, of the following exemptions or extensions apply to this facility?

- Two-year national capacity extension of the effective date for solvent wastes generated by small quantity generators (268.30) [ ]
- Two-year statutory exemption for solvent wastes generated from RCRA corrective or CERCLA Section 104 and 106 response actions (268.30) [ ]
- Two-year national capacity extension of the effective date for solvent-water mixtures, solvent-containing sludges, or solvent-containing soil (non-CERCLA/RCRA corrective action) containing less than 1% total F001-F005 solvent constituent (268.30) [ ]
- Other, specify (268.4, 268.5, 268.6, 268.31, 268.44) [ ]

3. Has the facility used dilution of a restricted waste as a substitute for adequate treatment to achieve compliance (268.3)?

yes ____ no ✓

4. List facilities to which off-site shipments of restricted wastes have been sent and/or from which shipments have been received.

a. Hydrocarbon Recyclers

b. ____

B. GENERATOR REQUIREMENTS

1. Generator has adequately tested his wastes using the TCLP, or applied knowledge, or both. [268.7(a)].....(✓)

2. Generator has determined the appropriate treatment standards for his restricted wastes. [268.7 and Subpart D].....(✓)

3. The generator is not sending restricted waste to a land disposal facility for direct land disposal without treatment.....(✓)

4. a. If restricted wastes require treatment prior to land disposal, then the generator has provided notification to the treatment facility with each off-site shipment. [268.7(a)].....(✓)

4. b. If restricted wastes do not require treatment prior to land disposal, then the generator has provided a notification and certification to the LDF that the wastes meet all applicable treatment standards and prohibitions [268.7(a)].....( )

- Certifications properly worded.....( )

5. If the generator's restricted waste is subject to any exemptions or extensions, then the generator has met various requirements.....( )

C. TREATMENT/STORAGE FACILITY REQUIREMENTS

1. The facility is not sending restricted waste to a land disposal facility for direct land disposal without treatment.....( )

2. The treatment facility has adequately tested its treatment residues using TCLP, or applied knowledge, or both to determine whether or not they meet the applicable treatment standards specified in 268.41 [268.7(b)].....( )

3. The facility has modified its waste analysis plan to include the additional testing requirements of 268.7, referenced in 264.13 and 265.13.....( )

4. a. If the waste treatment residues do not meet applicable treatment standards or prohibitions, and are sent to another treatment facility prior to land disposal, then the facility complied with the generator notification requirement of 268.7(a). [268.7(b)].....( )

4. b. If the treatment residue does not require further treatment prior to land disposal, then the facility submitted to the LDF with each shipment of waste residue a certification that the waste is in compliance with applicable treatment standards. [268.7(b)].....( )

- Certifications properly worded.....( )

5. The facility's written operating record has been modified, and now includes the documentation required by 264.73(b)(3)(10)(11)(12) or 265.73(b)(3)(8)(9)(10).....( )

6. If the facility has stored restricted wastes for greater than one year, then it can satisfactorily demonstrate that the storage has been for the purpose of accumulating an amount necessary to facilitate proper recovery, treatment or disposal (268.50).....( )

7. If the treatment facility is permitted, it has made the necessary minor modifications to its permit to allow it to treat restricted wastes not previously specified in the permit [270.42(c)].....( )

D. LAND DISPOSAL FACILITY REQUIREMENTS

1. The facility is not land disposing restricted wastes.....( )

2. The land disposal facility has records of notifications and certifications submitted by all applicable generators and storage and treatment facilities for each shipment of waste or waste treatment residue accepted for land disposal. [268.7(c)].....( )

3. The LDF has modified its waste analysis plan in accordance with the additional requirement of 268.7, referenced in 264.13 and 265.13.....( )

4. The LDF has adequately tested the wastes received using TCLP, applied knowledge, or both. [268.7(c)].....( )

5. The facility's written operating record has been modified, and now includes the documentation required by 264.73(b)(3)(10)(13)(14) or 265.73(b)(3)(8)(11)(12).....( )

COMMENTS: Contains small amounts of other Solvents with water oil & paint sludge & MEK.

Please mark boxes as shown (✓) In compliance (▮) In violation

Inspector's Signature Charles L. Grogan

Title Environmental Specialist

Office SWRO

The Forrester Group
ENVIRONMENTAL MANAGEMENT CONSULTANTS

CONFIDENTIAL

December 23, 1998

Mr. Gary Cyr
Assistant Director of Aviation
Springfield-Branson Regional Airport
5000 West Kearney
Springfield, MO 65803

INVESTIGATIVE RESULTS AT THE MATERIAL STORAGE PAD

Dear Mr. Cyr:

This letter is to transmit the results of our investigations of the Material Storage Pad ("Pad") owned by the Springfield-Branson Regional Airport ("Airport") and operated by World Wide Transportation Services ("World Wide"). The Pad, located just south of the World Wide hangar, is a 10 foot by 40 foot concrete slab with a lip approximately 6 inches high around the perimeter. It is set into a north-facing hillside and is roofed and generally protected from the weather on the east, south and west sides. The pad was found to contain numerous drums of suspected hazardous materials and wastes. Practically the entire surface of the pad was stained.

PROCEDURES

Investigations were performed to evaluate potential impact to soil beneath the Pad due to material use and waste management practices therein. The objective of this work was to collect and analyze eight soil samples from four sample locations and two depths. Prior to collecting the soil samples, the concrete surface as cleaned, to minimize the introduction of potentially affected concrete cuttings into the soil, and then cored. One core was cut from the approximate center of the four 10 feet by 10 feet sections of the Pad as define by the posts supporting the roof. The concrete cores, 6 inches in diameter, were cut through the concrete pad, which was 5 inches thick. Sample locations were identified as numbers 1 through 4, from west to east.

Beneath the concrete, a layer of base rock from 4 to 8 inches thick was found which was saturated with water. It would appear that this was storm water resulting from runoff from the adjacent hillside. The baserock was scooped out and a hand auger was used to collect soil samples. Soil samples were collected from the upper 8 inches of soil at four locations and from an approximate soil depth of 12 to 18 inches at location 2. The presence of rocky soil prevented the collection of soil samples at depth from locations 1, 2, and 4. All soil samples appeared to consist of dense silty clay with some chert-rock. Soil samples were moist but not saturated.

605 NORTH BOONVILLE AVENUE • P.O. BOX 6406 • SPRINGFIELD • MISSOURI 65806
PHONE 417.864.6444 • FAX 417.864.6445

inches) at a concentration of 21.3 milligrams per kilogram (or parts per million, "ppm") as compared to a commercial standard of 11 ppm.

Water samples were also evaluated and compared to the Maximum Contaminant Levels ("MCLs") developed by the Environmental Protection Agency ("EPA"). The MCLs represent maximum levels of chemicals that are allowable in drinking water. Though the water beneath the Pad would never be considered potable, MCLs represent an "original" condition of the property prior to the construction and use of the Pad and therefore are a useful indication of impact from chemical storage activities. Review of the data indicates that several chemicals are present in the water beneath the Pad above EPA MCLs.

The concrete sample results were also evaluated and compared to TCLP standards developed by the EPA. TCLP levels represent acceptable levels for materials that may leach if disposed in a landfill. Review of the data indicates that the concrete is not affected above TCLP levels for VOCs, SVOCs, and metals. All laboratory reports are available for your review upon request.

CONCLUSIONS AND RECOMMENDATIONS

Based upon our review of analytical data from representative soil and water samples, we make the following conclusions.

- Only very limited chemical impact to soil above CALM commercial cleanup levels for 1,1-dichlorethene and arsenic was detected. Considering the relatively close proximity of the soil samples, the average concentrations of these chemicals may be a more useful indication of actual site conditions. The average concentrations for these chemicals are essentially at or below the CALM commercial cleanup levels. However, due to these two exceedences, we cannot unequivocally conclude that soil remediation is unnecessary. We therefore recommend that the MDNR Voluntary Cleanup Program be contacted to obtain their review of these results. Given MDNR approval that no further action is warrented, site redevelopment can proceed.

- Water beneath the Pad is affected above EPA MCL levels. To properly manage this water, we recommend the city of Springfield be contacted regarding disposal of this water to the sanitary sewer. Alternatively, the Airport's storm water permit may be reviewed to determine if this water can be discharged to the land surface.

- Concrete comprising the Pad appears to not be affected above TCLP levels and so does not require any special disposal. However, we recommend that the surface of the concrete be cleaned prior to disposal of the concrete. Any residue or

Springfield-Branson
REGIONAL AIRPORT
5000 WEST KEARNEY • SUITE 15 • SPRINGFIELD, MISSOURI 65803 • 417 869-0300 • FAX: 417 869-1031

January 15, 1999

Mr. Jim McClean, President
Worldwide Aircraft Services, Inc.
4950 W. Kearney, Suite A
Springfield, MO 65803

Re: Materials Storage Area

Mr. McClean:

As you know, in preparation for the removal of the hill south of Hangar 1, the Airport analyzed the soil and groundwater at your materials storage area. Unfortunately, this analysis shows that two chemicals (arsenic and 1,1-dichloroethene) exceeded the "Cleanup Levels for Missouri" as established by the Missouri Department of Natural Resources ("MDNR"). Worldwide Aircraft Services must resolve this problem swiftly. Therefore, you must provide to me, within ten days, a written description of the actions that Worldwide Aircraft Services is taking.

It is critical that you contact MDNR immediately and begin the follow-up activities recommended by MDNR. For your use in dealing with MDNR, I have enclosed copies of two letters from the environmental consultants that conducted the above investigation. Fortunately, the sampling data does not appear to indicate a significant problem. As a result, you may want to consider Missouri's Voluntary Cleanup Program, as recommended by the Airport's environmental consultants.

The Airport already has notified MDNR about the results of above analysis. Please keep me informed regarding your contacts with MDNR, MDNR's recommendations, and the actions Worldwide Aircraft Services will be taking. You must resolve this problem as soon as possible in order to avoid any conflict with the Airport's ongoing construction projects.

SPRINGFIELD-BRANSON REGIONAL AIRPORT

Robert D. Hancik, A.A.E.
Director of Aviation

The Forrester Group
ENVIRONMENTAL MANAGEMENT CONSULTANTS

January 8, 1999

Dr. Chris Cady
Missouri Department of Natural Resources
Hazardous Waste Program/Voluntary Cleanup Section
P.O. Box 176
Jefferson City, MO 65102-0176

SPRINGFIELD BRANSON REGIONAL AIRPORT – PRELIMINARY DATA REVIEW

Dear Dr. Cady:

Per our discussion earlier this week, attached with this letter is the information and data regarding soil samples collected at the Springfield-Branson Regional Airport ("Airport") in Springfield, Missouri. As you will see in my letter to the Airport, the vast majority of the data indicates to me that no significant problem exists at the sampling area. However, one soil sample exceeded CALM levels for arsenic and another soil sample exceeded CALM levels for 1,1-dichloroethene.

Therefore, I have recommended to the Airport, and they have agreed, that these results should be reviewed by the MDNR. I would greatly appreciate obtaining your opinion regarding the acceptability of these data and the need for any recommended follow-up activities. Based on our conversation this week, I understand that you may recommend that the Airport enter the Voluntary Cleanup Program if significant further review or remedial actions are necessary.

If you have any questions or comments or desire any additional information, please contact me at (417) 864-6444 extension 21. Thank you for your assistance.

Sincerely,

Robert M. Kick

Robert M. Kick, R.G.
Consultant

Enclosures
Copy to: Mr. Gary Cyr, Springfield-Branson Regional Airport ✓
Mr. Ray Forrester, The Forrester Group Inc.

DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality

TELEPHONE OR CONFERENCE RECORD

File: Springfield-Branson Regional Airport **Date:** 5-30-06

TELEPHONE
Incoming (X)
Outgoing ( )

CONFERENCE
Field ( )
Office ( )

SUBJECT:
The Forrester Group conducted an investigation of the material storage pad located south of the south hanger (now passenger bus loading area) of the Springfield-Branson Regional Airport.

PERSONS INVOLVED:

Name	**Representing**
Shelly Jackson	HWP, SPF
Bob Kick	The Forrester Group

SUMMARY OF CONVERSATION:
Mr. Kick was responding to a message left on his voice mail.

The Forrester Group had notified the airport of contamination found near the materials storage pad they were investigating, and, with the airport's permission, notified MDNR in a letter to Chris Cady dated January 8, 1999.

Mr. Kick stated there was a pad located in the grassy field south of the hanger. The pad was approximately 10 X 40 feet and had a roof and lip to prevent runoff. The Forrester Group drilled holes in the pad and collected soil samples from underneath. He stated the fill under the pad was moist and they suspected the pad was in the stormwater flow path.

Mr. Kick stated arsenic was found at 21.3 ppm in the soil while the CALM level at the time was 11 ppm. 1,1-DCE was found in the soil at 540 ppb, while the CALM level was 90 ppb. The concrete pad was also tested and passed TCLP.

In a conversation Mr. Kick recalled with Chris Cady, HWP, Chris told them unrestricted land use levels are ok, unless the facility entered BVCP, then there would be a land use restriction.

Mr. Kick stated the 1,1-DCE soil was excavated and the base soil was resampled and it tested clean.

Mr. Kick also stated that the material storage pad was removed, but not by his company. He thought the city of Springfield might have done it. However, the Forrester Group conducted verification samples that were clean.

Shelly Jackson, Environmental Specialist
MDNR-HWP

MISSOURI DEPARTMENT OF NATURAL RESOURCES
HAZARDOUS WASTE PROGRAM/SUPERFUND SECTION

Desk Top Review
Decision Form

Site Name: Springfield - Branson Regional Airport EPA ID No.:

Alias: Municipal Airport

Address/Location: 5000 W. Kearney Street

City/Location: Springfield County: Greene State: MO Zip Code: 65803-9573

Site Referred By: MDNR

Any Previous Private, State, or Federal Investigations or Assessments?

Yes X No _____ If yes, explain (what type of investigation, date, recommendations and current status):

In 1991 a contractor reported a gasoline odor while removing two 1,000-gallon tanks. Remediation is ongoing. In 2001 a truck hauling 5,000 gallons of jet fuel turned over. The spill was estimated to be less than 100 gallons released and the Southwest Regional Office was responsible for oversight of the cleanup.

DECISION:

( ) 1. Proceed with a Pre-CERCLIS Site Screening to determine CERCLA and /or state eligibility.

(X) 2. Site CERCLA eligible, proceed with site discovery and further assessment under CERCLA:

2a. Qualifier: ( ) High (X) Medium ( ) Low

2b. Activity Type: (X) PA (X) SI ( ) RA ( ) ESI

( ) Other: _____

( ) 3. Site deferred or being addressed under another state or federal program:

( ) 4. No Further Assessment Required (NFAR)

DISCUSSION / RATIONALE:

In 1991 while removing 2 1,000-gallon underground storage tanks (one containing diesel, one gasoline) from the airport, the contractor noticed a gasoline odor. Due to excessive hydrocarbon contamination of the groundwater, MDNR required remediation of the site. As part of the remediation, 25 groundwater monitoring wells have been installed on airport property over the past 23 years, some were installed to replace monitoring wells that were destroyed or damaged by routine airport activities and expansions.

A February 22, 1995 sampling event conducted by the airport found six inches of a dense non-aqueouse phase liquid (DNAPL) in groundwater Monitoring Well 20 (MW-20). The DNAPL was determined to be Trichloroethene (TCE). The same sampling event also found TCE present in MW-13 (1520 ppb) and MW-18 (8 ppb). In the narrative of the sampling report, it was suspected the TCE contamination was from the Litton System, Inc. facility (MOD007152903, a.k.a. Litton Integrated Circuit Manufacturing Facility) that is located immediately east of the monitoring wells, as the airport history has no mention of using TCE containing products. Subsequent sampling events in March 1997 and December 2001 found TCE present in MW-7 (11 ppb, 6.6 ppb), MW-13 (1087 ppb, 1920 ppb) and MW-19 (3 ppb, a new well sampled in 2001 only). During subsequent sampling events the airport has not analyzed groundwater samples for the presence of TCE.

MDNR's Remedial Project Unit is currently overseeing remedial clean-up activities at the Litton Industries site, located less than 100 feet east of the Springfield-Branson Regional Airport east property boundary. TCE was found in numerous groundwater samples within a 3.5 mile radius of the Litton site. During investigations, other potential sources of TCE releases were identified within the area. As the groundwater samples showing TCE presence are not entirely attributable to

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Shelly Jackson, Environmental Specialist (Name/Title) 11-20-04 (Date)
PO Box 176, Jefferson City MO 65102 (Address) 573-751-1288 (Phone)
shelly.jackson@dnr.mo.gov (E-Mail Address)

Site Name: Springfield Branson Regional Airport

Previous Names (if any): _____

Site Location: 5000 W. Kearney Street (Street)
Springfield (City), MO (ST) 65803 (Zip)

Latitude: 37.248933 **Longitude:** -93.37817

Describe the release (or potential release) and its probable nature: There is a known TCE groundwater plume in the area. Tenants of the Springfield Branson Regional Airport are known to use TCE. Improper disposal of TCE containing solvents may have resulted in contaminated soils and migration of TCE to the groundwater.

Part 1 - Superfund Eligibility Evaluation

If all answers are "no" go on to Part 2, otherwise proceed to Part 3.	YES	NO
1. Is the site currently in CERCLIS or an "alias" of another site?	☒	☐
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?	☐	☒
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (e.g., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?	☐	☒
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?	☐	☒
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exists (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, or an EPA approved risk assessment completed)?	☐	☒

Please explain all "yes" answer(s). The Springfield Branson Regional Airport was entered onto CERCLIS as the result of a Desk Top Review Conducted March 15, 2004. The Desk Top Review recommended further investigation under CERCLA.

EXHIBIT 1
SITE ASSESSMENT DECISION GUIDELINES FOR A SITE

Exhibit 1 identifies different types of site information and provides some possible recommendations for further site assessment activities based on that information. You will use Exhibit 1 in determining the need for further action at the site, based on the answers to the questions in Part 2. Please use your professional judgement when evaluating a site. Your judgement may be different from the general recommendations for a site given below.

Suspected/Documented Site Conditions		APA	Full PA	PA/SI	SI
1. There are no releases or potential to release.		Yes	No	No	No
2. No uncontained sources with CERCLA-eligible substances are present on site.		Yes	No	No	No
3. There are no on-site, adjacent, or nearby targets.		Yes	No	No	No
4. There is documentation indicating that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site.	Option 1: APA ⇨ SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
5. There is an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site.	Option 1: APA ⇨ SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
6. There is an apparent release and no documented on-site targets and no documented targets immediately adjacent to the site, but there are nearby targets. Nearby targets are those targets that are located within 1 mile of the site and have a relatively high likelihood of exposure to a hazardous substance migration from the site.		No	Yes	No	No
7. There is no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site.		No	Yes	No	No

Part 3 - EPA Site Assessment Decision

When completing Part 3, use Part 2 and Exhibit 1 to select the appropriate decision. For example, if the answer to question 1 in Part 2 was "no," then an APA may be performed and the "NFRAP" box below should be checked. Additionally, if the answer to question 4 in Part 2 is "yes," then you have two options (as indicated in Exhibit 1): Option 1 -- conduct an APA and check the "Lower Priority SI" or "Higher Priority SI" box below; or Option 2 -- proceed with a combined PA/SI assessment.

Check the box that applies based on the conclusions of the APA:

- ☐ NFRAP
- ☒ Higher Priority SI
- ☐ Lower Priority SI
- ☐ Defer to RCRA Subtitle C
- ☐ Defer to NRC
- ☐ Refer to Removal Program - further site assessment needed
- ☐ Refer to Removal Program - NFRAP
- ☐ Site is being addressed as part of another CERCLIS site
- ☐ Other: _____

Missouri DNR Preparer ~~Regional EPA Reviewer~~: Shelly Jackson / Shelly Jackson (Print Name/Signature) 11-20-04 (Date)

Springfield-Branson Regional Airport Site

Site Inspection Drinking Water Calculation Worksheet
City of Springfield, MO Public Water Supply
September 25, 2006, Shelly Jackson

Year ending 2005	
Number of Drinking Water Sources:	9
Number of Water Meters:	69,293
Average Persons Per Household According to 2000 U.S. Census:	2.34
Number of Customers served by City of Springfield Public Water System (2.34 x 69,293):	162,146
Total Raw Water Treated in 2005 (Million Gallons)	12,261.23

Drinking Water Source:	Distance from Site in miles:	2005 Total Raw Water Produced (In Million Gallons):	% of Total Raw Water Produced in 2005[a]:	% of Population Allocated to Source[b]:	Number of People Served[c]:
Orchard Crest Well (Well #10)	2-3	47.87	0.39	12.50	20,268
Fulbright Spring	>4	1,200.88	9.80	12.50	20,268
Fulbright Well (Well #1)	>4	638.72	5.21	12.50	20,268
McDaniel Lake	>4	3,130.08	25.53	12.50	20,268
James River	>4	2,552.09	20.81	12.50	20,268
Fellows Lake	>4	4,030.02	32.87	12.50	20,268
Well #11	>4	37.09	.30	12.50	20,268
Well #12	>4	261.02	2.13	12.50	20,268
Well #13	>4	0	0	0	0

Total People Served by City of Springfield Groundwater Sources Located Within Four Miles of the Site: Orchard Crest Well (Well #10), Fulbright Well (Well #1), and Fulbright Spring[d]: 20,268

[a] - Total Raw Water Produced/Total Raw Water Treated in 2005

[b] - Since no source supplied more than 40% of the total population being served, the population was equally apportioned among eight sources.

[c] - Number of Customers x 12.5%

[d] - 162,146 x 12.5% = 20,268

FILE: Litton Industries PA/SI
Greene Co.

MEMORANDUM

DATE: December 30, 2003

TO: Nancy Priddy, Environmental Specialist
Hazardous Waste Program,
Air and Land Protection Division

FROM: Peter Bachle, Geologist
Geological Survey Program,
Geological Survey and Resource Assessment Division (GSRAD)

SUBJECT: Geohydrologic Summary of Litton Industries Site

LOCATION: SE ¼, SW ¼, Section 6, Township 29 North, Range 22 West, Brookline 7.5-Minute Quadrangle, Greene County, Missouri
37° 14' 34" North Latitude and 93° 22' 40" West Longitude

LOCATION AND PHYSIOGRAPHIC SETTING

The Litton Industries site is located on a broad upland area that lies on the northwestern side of the city of Springfield, Missouri. This site lies along the eastern edge of the Springfield-Branson Regional Airport. The site is located in the SE ¼, SW ¼, Section 6, Township 29 North, Range 22 West. Approximate coordinates for the site are 37° 14' 34" north latitude and 93° 22' 40" west longitude. Elevation at the site ranges from approximately 1,270 to 1,290 feet above mean sea level (USGS, 1960).

The Litton Industries site lies in the northeast edge of the Springfield Plateau of the Ozark Plateau sub-province of the Interior Highlands physiographic province in Missouri, which is characterized by rolling uplands with shallow dissected valleys (Fenneman, 1938).

GROUNDWATER PATHWAY

Mississippian-age cherty limestone lies beneath the site and constitutes the Springfield Plateau Aquifer that produces up to 30 gallons per minute. The Springfield Plateau Aquifer

percent clay (Hughes, 1982). Residuum beneath the soil is cherty silty clay that grades into cherty silty clayey gravel with depth. The soil and residuum range in thickness from 10 to over 60 feet beneath the site, based on logs from on site wells.

Hydrology

The Keeno-Eldon soil complex is acidic (pH 3.6 to 6.5) and permeability is moderate to rapid (6.0 to 0.2 inches per hour) (Hughes, 1982). The hydraulic conductivity is roughly 4.2×10^{-3} to 1.4×10^{-4} centimeters per second (cm/sec). Site specific data indicates the overburden groundwater flow direction is toward the north-northwest beneath the site.

Springfield Plateau Aquifer

Stratigraphy

Mississippian-Age Limestone: The Mississippian-age rocks beneath the site are divided into the Burlington-Keokuk Limestone, Reeds Spring, and Fern Glen formations. These formations consist of limestone, cherty limestone, and argillaceous limestone units (Thompson, 1995). The Mississippian-age rocks in this aquifer beneath the site extend from near ground surface to approximately 235 feet below ground surface.

Hydrology

The hydraulic conductivity of the Springfield Plateau Aquifer is roughly 7.8×10^{-3} cm/sec (Imes and Smith, 1990). Due to the karst nature, permeability and gradient characteristics may vary over short distances. Fifty-two wells of record, within the 4-mile target area, are completed in the Springfield Plateau Aquifer.

Based upon site specific and dye trace data, the Springfield Plateau Aquifer groundwater flow direction is toward the north to north-northwest (MEGA, 2003).

Ozark Confining Unit

Stratigraphy

Mississippian-Age Rocks: The deepest and oldest Mississippian-age rocks beneath the site consist of the Northview Formation. This formation is composed of shale and cherty limestone (Logmain, 2003). This formation is the local representation of the Ozark Confining Unit and forms a semi-effective barrier to downward migration of water in the area. The Northview Formation is roughly 30 feet thick beneath the site.

Hydrology

The hydraulic conductivity of the Ozark Confining Unit ranges from 1.0×10^{-5} to 5.0×10^{-6} cm/sec (Imes and Emmett, 1994). Of the known wells, 285 within the 4-mile well survey are cased through this unit.

The St. Francois Confining Unit is an effective barrier to downward groundwater movement (Imes, 1990). The Derby- Doerun may have hydraulic conductivity as low as 1 x 10^{-8} cm/sec (Imes and Emmett, 1994).

STRUCTURAL FEATURES

There are three east-west faults within 4 miles of the site that may influence groundwater flow direction (Thompson, unpublished; Middendorf, unpublished). These faults may allow water to flow from the Springfield Plateau Aquifer into the underlying Ozark Aquifer.

SURFACE WATER PATHWAY

Potential Point of Entry (PPE)

Surface water leaving the Litton Industries site flows roughly 0.7 mile north-northwest down the slope of the low ridge until it enters a sinkhole network. From this point, surface water infiltrates the Springfield Plateau Aquifer and becomes part of the groundwater regime. The infiltrated water most likely discharges from the springs located north of the site. Due to the sinkhole, there is no PPE for surface water at this site.

Miscellaneous Surface Water Characteristics

There are no known surface drinking water intakes within 15 miles downstream of the site. The site lies outside of a floodplain. The surface water runoff area up gradient from the site is less than 20 acres. The 2-year, 24-hour rainfall is approximately 3.8 inches (Weather Bureau, 1961).

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Litton Industries Site, Greene County, Missouri

Non-monitoring wells located within 4.0 mile of the Litton Industries Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
0 to 0.25 Mile																
Logmain	022630	1390	--	S2	SW	SE	6	29N	22W	1277	--	1964	Industrial	LITTON INDUSTRIES	Ozark	300
Total number of wells located 0 to 0.25 Mile from the Litton Industries Site: 1																
0.25 to 0.5 Mile																
Logmain	008718	1250	--	SE	SE	SE	1	29N	23W	1267	--	1944	Community Public Well	SPFD. MUNICIPAL ARPT #1	Ozark	307
Total number of wells located 0.25 to 0.5 Mile from the Litton Industries Site: 1																
0.5 to 1 Mile																
Logmain	016604	487	--	NW	NW	NW	8	29N	22W	1269	--	1957	Domestic	MILLER, JAMES	Ozark	10
PWS	51050	750	--	NE	NW	NE	12	29N	23W	--	--	1978	Non-community Public	Springfield- Branson Airport	Ozark	--
WIMS	198419	555	100	C	C	C	5	29N	22W	--	180	1998	Domestic	UPDEGRAFF	Ozark	10
WIMS	231421	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	231422	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	231423	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	237643	--	--	C	C	C	5	29N	22W	--	--	2000	Domestic	WALLACE	Unknown	10
WIMS	290205	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	30911	--	--	C	C	C	6	29N	22W	--	--	1989	--	QUINN	Unknown	10
Total number of wells located 0.5 to 1 Mile from the Litton Industries Site: 9																
1 to 2 Miles																
Logmain	001901	720	--	SE	SW	C	7	29N	22W	1385	--	1915	Community Public	COUNTY HOME WELL	Ozark	60
Logmain	003597	205	--	SE	SE	SE	8	29N	22W	--	95	1936	Domestic	LINDSEY, O.E.	Springfield and/or Ozark	6
Logmain	003822	170	--	SW	SE	SE	7	29N	22W	1272	70	1936	Domestic	MCBRIDE, F.D.	Springfield Plateau	1
Logmain	004408	205	--	SW	NW	W2	17	29N	22W	1271	30	1937	Domestic	HOLIWAY	Springfield and/or Ozark	--
Logmain	004977	158	--	SW	SW	NW	9	29N	22W	1281	--	1938	Domestic	BALL, GEORGE	Springfield Plateau	--

[redacted]-monitoring wells located within 4.0 mile of the Litton Industries Site [redacted]

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
WIMS	173374	710	358	C	C	SW	18	29N	22W	--	--	1998	Domestic	BLANTON	Ozark	--
WIMS	198420	431	105	C	C	NE	2	29N	23W	--	120	1998	Domestic	RAND	Ozark	--
WIMS	209122	455	126	C	C	NW	5	29N	22W	--	--	1998	Domestic	SHORES	Ozark	--
WIMS	209123	--	--	C	C	C	5	29N	22W	--	--	2000	Domestic	SHORES	Unknown	10
WIMS	209178	640	340	C	C	SE	6	29N	22W	--	--	1999	Non-Community Public	SNYDER	Ozark	--
WIMS	225141	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	228172	548	343	C	NE	SW	18	29N	22W	--	322	1999	Domestic	STAHAL	Ozark	--
WIMS	229658	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	231408	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	232145	500	280	SE	SE	SE	5	29N	22W	--	160	2000	Domestic	HARPER	Ozark	--
WIMS	233717	588	105	NE	SE	SW	5	29N	22W	1210	200	1999	Domestic	DAUME	Ozark	10
WIMS	235588	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	248526	425	105	C	C	C	5	29N	22W	--	120	2000	Domestic	TROYER	Ozark	10
WIMS	256407	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	257439	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	258707	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	273238	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281364	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281803	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281857	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	290203	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	293097	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	30204	568	--	C	SE	SE	5	29N	22W	--	--	--	--	BAXTER	Ozark	8
WIMS	30909	505	--	C	C	C	18	29N	22W	--	--	1988	--	PROCTOR	Ozark	10
WIMS	33490	460	--	C	NE	SE	5	29N	22W	1270	270	1990	Domestic	BLEDSOE	Ozark	7
WIMS	33497	420	117	C	C	C	5	29N	22W	--	250	1990	--	RACE	Ozark	--
WIMS	38863	568	211	C	SE	SE	5	29N	22W	1240	150	1990	Domestic	BAXTER	Ozark	--
WIMS	44769	430	231	SE	SE	NW	6	29N	22W	1250	150	1989	--	QUINN	Ozark	--
WIMS	60361	385	210	C	NE	SW	5	29N	22W	1260	120	1990	Domestic	--	Ozark	14
WIMS	66919	610	389	NE	SE	NW	5	29N	22W	1235	200	1992	Domestic	SMALLEY	Ozark	10
WIMS	67683	604	--	C	C	C	18	29N	22W	--	360	1991	Domestic	HAGENHOFF	Ozark	--

-monitoring wells located within 4.0 mile of the Litton Industries Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
Logmain	005623	260	--	NE	SW	N2	19	29N	22W	1286	--	1939	Domestic	DAVIS, MRS. L.M.	Ozark	--
Logmain	005771	95	--	SE	NW	SW	9	29N	22W	1284	--	1939	Domestic	KIMBLE	Springfield Plateau	--
Logmain	005987	328	--	S2	NE	NW	4	29N	22W	1242	90	1940	Domestic	GREENWADE	Ozark	20
Logmain	006048	177	--	SE	SE	SW	17	29N	22W	1246	60	1940	Domestic	HARMON, DR. W.R.	Springfield Plateau	13
Logmain	006049	354	--	SE	SW	NW	17	29N	22W	1258	165	1940	Domestic	CLARKE, J.S.	Ozark	10
Logmain	007302	130	--	SE	NE	NW	19	29N	22W	1292	--	1941	Domestic	MILLER, FRANK	Springfield Plateau	--
Logmain	007303	393	--	NW	NW	C	21	29N	22W	1243	--	1941	Domestic	PAMPLIN, E. #1	Ozark	5
Logmain	007305	184	--	SW	SE	NW	17	29N	22W	1248	--	1941	Domestic	BENNETT, H.W.	Springfield Plateau	6
Logmain	007623	389	--	SW	SW	SW	16	29N	22W	1265	--	1941	Domestic	GORTON, WM., JR.	Ozark	5
Logmain	008135	81	--	C	C	C	--	29N	21W	--	--	1945	Domestic	DICKENS, PEARL	Springfield Plateau	--
Logmain	009562	420	--	NW	NE	NW	20	29N	22W	1248	--	1947	Irrigation	YOUNG'S ORCHARD #1	Ozark	--
Logmain	009991	335	--	N2	SE	N2	5	29N	22W	1246	185	1947	Domestic	McKINLEY, THOMAS	Ozark	8
Logmain	010064	176	--	NE	SE	SW	20	29N	22W	1246	90	1947	Domestic	HOWARD, DONALD E. & FAITH	Springfield Plateau	1
Logmain	010079	100	--	SE	SE	SE	18	29N	22W	1266	40	1948	Domestic	THOMAS, LOWELL	Springfield Plateau	1
Logmain	010399	432	--	S2	SE	SE	4	29N	22W	1243	--	1948	Domestic	HEALEY, J.E.	Ozark	5
Logmain	010589	--	--	S2	SE	SE	4	29N	22W	--	--	--	Domestic	BERG, FRANK	Unknown	--
Logmain	010666	165	--	NW	SW	SE	19	29N	22W	1270	--	1947	Domestic	BILYEU, W.D.	Springfield Plateau	--
Logmain	010755	282	--	N2	NE	NW	5	29N	22W	1252	165	1947	Noncommunity Public	SCHUYLER SCHOOL	Ozark	10
Logmain	010756	330	--	S2	NE	SW	4	29N	22W	1279	230	1947	Domestic	MORRIS, J.E.	Ozark	2
Logmain	010879	330	--	N2	NW	E2	6	29N	22W	1285	220	1949	Domestic	DAVIS, J.W.	Ozark	4
Logmain	010955	175	--	NE	NE	SE	17	29N	22W	1286	--	1947	Noncommunity Public	HUTCO EQUIP CO.	Springfield Plateau	2
Logmain	010968	170	--	NE	NW	SE	9	29N	22W	1314	--	1947	Domestic	VAUGHN, EVERETT	Springfield Plateau	1
Logmain	011381	825	--	NE	SW	NW	16	29N	22W	1290	--	1950	Noncommunity Public	NEW BISSETT SCHOOL	Ozark	20
Logmain	011388	405	--	SW	SW	SW	17	29N	22W	1258	--	1950	Noncommunity Public	SUNSET DRIVE-IN THEATER	Ozark	18
Logmain	011835	182	--	SE	SE	SE	18	29N	22W	1255	45	1951	Domestic	GARRETT, WILLIAM	Springfield Plateau	3
Logmain	012036	168	--	S2	SW	NE	4	29N	22W	1234	85	1952	Domestic	SELL, HARLIN	Springfield Plateau	5
Logmain	012580	339	--	S2	SE	E2	4	29N	22W	1267	255	1953	Domestic	McCOY, JAMES	Ozark	2
Logmain	012699	1216	--	NW	NE	SE	20	29N	22W	1258	--	1954	Community Public	CITY OF SPRINGFIELD #2	Ozark	350
Logmain	012729	500	--	NW	NE	N2	20	29N	22W	1244	--	1954	Domestic	LILLEY, F.C.	Ozark	20
Logmain	013316	330	--	NE	SE	NE	5	29N	22W	1243	190	1954	Domestic	BLALOCK, B.D.	Ozark	20
Logmain	014380	525	--	SW	SE	SE	16	29N	22W	1266	--	1955	Noncommunity Public	CHILES TRACTOR	Ozark	12

[redacted]-monitoring wells located within 4.0 mile of the Litton Industries Site [redacted]

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
WIMS	138769	435	100	C	C	C	5	29N	22W	--	150	1995	Domestic	GUGEL	Ozark	--
WIMS	140472	584	105	C	C	SE	4	29N	22W	--	130	1995	Domestic	NEMETI	Ozark	10
WIMS	140496	545	105	C	C	SE	4	29N	22W	--	150	1995	Domestic	SMITH	Ozark	10
WIMS	14341	--	--	C	C	C	5	29N	22W	1230	--	1989	Domestic	GOODRUM	Unknown	8
WIMS	14991	560	--	C	C	C	4	29N	22W	--	--	1989	Domestic	FORTNER	Ozark	--
WIMS	151089	625	80	C	C	C	9	29N	22W	--	291	1996	Domestic	DILLON	Ozark	8
WIMS	155792	385	170	SW	SW	NW	32	30N	22W	1175	120	1996	Domestic	VERNON	Ozark	10
WIMS	157188	745	281	C	C	C	4	29N	22W	--	150	1996	Domestic	YOUNG	Ozark	--
WIMS	158499	585	105	SW	NW	NW	5	29N	22W	1240	180	1996	Domestic	LOONEY	Ozark	--
WIMS	158685	565	105	C	C	SE	14	29N	23W	--	320	1996	Domestic	CROUCH	Ozark	10
WIMS	16946	410	213	C	NW	SE	24	29N	23W	--	160	1990	Domestic	WHILOCK	Ozark	15
WIMS	169934	585	105	SE	NW	SE	4	29N	22W	1225	200	1996	Domestic	NEMENTI	Ozark	--
WIMS	170034	435	100	C	C	C	32	30N	22W	--	--	1997	Domestic	RUSSELL	Unknown	--
WIMS	173387	710	316	C	C	NE	4	29N	22W	--	280	1997	Domestic	ANDERSON	Ozark	--
WIMS	180729	640	340	C	C	C	4	29N	22W	--	--	1997	Non-Community Public		Ozark	--
WIMS	181657	416	106	C	NE	SE	4	29N	22W	--	200	1997	Domestic	CREWS-INLOW	Ozark	10
WIMS	185256	305	105	C	C	NE	4	29N	22W	--	--	1997	Domestic	UCKELE	Ozark	--
WIMS	186569	510	232	NE	NE	SE	31	30N	22W	1190	170	1998	Domestic	WALKER	Ozark	--
WIMS	192684	1400	500	SW	SE	SW	2	29N	23W	1250	274	1998	Community Public	--	Ozark	650
WIMS	193065	348	273	SE	NE	SE	4	29N	22W	1200	70	1998	Domestic	HANCOCK	Ozark	10
WIMS	198411	556	180	C	SE	SE	4	29N	22W	1200	--	1998	Domestic	LACHMUND	Ozark	--
WIMS	209171	455	100	SW	NE	NW	4	29N	22W	1220	150	1998	Domestic	KINNEY	Ozark	--
WIMS	210160	445	105	C	C	SE	31	30N	22W	--	200	1998	Domestic	--	Ozark	20
WIMS	211346	428	120	C	NE	NE	5	29N	22W	--	165	1999	Domestic	MICHAEL	Ozark	10
WIMS	211684	588	420	SE	SW	SE	14	29N	23W	1320	210	1998	Non-Community Public	--	Ozark	10
WIMS	214129	511	170	C	C	C	14	29N	23W	--	150	1999	Domestic	BROOKS	Ozark	12
WIMS	216237	428	105	C	C	NW	2	29N	23W	--	180	1999	Domestic	MATLOCK	Ozark	10
WIMS	225138	--	--	C	C	C	4	29N	22W	--	--	2000	Domestic	KRUMHOLZ	Unknown	10
WIMS	225140	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	227110	405	105	SW	NE	NE	6	29N	22W	1250	180	1999	Domestic	--	Ozark	10
WIMS	228216	625	126	C	C	SE	2	29N	23W	--	140	1999	Domestic	JONES	Ozark	40

[redacted]-monitoring wells located within 4.0 mile of the Litton Industries Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
WIMS	4612	308	105	C	C	C	5	29N	22W	--	130	1987	Domestic	SMALLEY	Ozark	--
WIMS	46818	445	231	C	NE	SE	4	29N	22W	1222	130	1990	Domestic	PFISTER	Ozark	15
WIMS	5136	403	159	C	C	C	34	30N	22W	--	140	1986	Domestic	STONE	Ozark	--
WIMS	57539	535	--	C	C	C	24	29N	23W	--	330	1990	Domestic	CAMPBLE	Ozark	6
WIMS	61361	400	222	SE	SE	NE	5	29N	22W	1240	150	1991	Domestic	KLEEMAN	Ozark	--
WIMS	61826	622	340	C	SE	SE	14	29N	23W	1312	180	1991	Domestic	KENNEDY	Ozark	--
WIMS	63277	425	315	C	SE	SW	14	29N	23W	1285	180	1991	Domestic	GOVERO	Ozark	8
WIMS	66206	170	151	C	NW	SW	11	29N	23W	--	--	1991	Domestic	KNEPPER	Ozark	--
WIMS	66920	610	375	SW	NE	NE	5	29N	22W	1260	200	1992	Domestic	CAMPL, JR	Ozark	--
WIMS	66922	610	369	SE	NW	NE	5	29N	22W	1250	300	1992	Domestic	ROBERTSON	Ozark	--
WIMS	66979	91	85	C	C	C	0	--	--	--	--	1992	Domestic	ELLIOTT	Springfield Plateau	--
WIMS	6901	405	147	C	SW	NE	33	30N	22W	1200	120	1987	Domestic	REYNOLDS	Ozark	20
WIMS	75219	465	168	NW	NW	SW	4	29N	22W	1210	150	1992	Domestic	PFISTER	Ozark	10
WIMS	75239	425	315	NW	NE	NW	5	29N	22W	1205	150	1992	Domestic	SWADLEY	Ozark	10
WIMS	76046	475	182	C	NW	NW	11	29N	23W	--	250	1992	Domestic	FRIEND	Ozark	10
WIMS	821	388	220	C	C	C	1	29N	23W	--	150	1987	Domestic	BINKLEY	Ozark	8
WIMS	82411	375	83	SE	SE	NW	4	29N	22W	1210	150	1993	Domestic	MCGROSKY	Ozark	10
WIMS	88273	405	--	C	SW	NE	33	30N	22W	1200	--	1992	--	REYNOLDS	Ozark	--
WIMS	88290	525	315	NE	NE	NE	24	29N	23W	1295	240	1992	Domestic	DRENNON	Ozark	20
WIMS	92830	325	270	C	SE	SE	4	29N	22W	--	150	1993	Domestic	JACKSON	Ozark	--
WIMS	93281	460	180	NE	SW	SE	4	29N	22W	1205	120	1993	Domestic	LEADER	Ozark	10
WIMS	98772	480	180	C	NW	NE	5	29N	22W	--	150	1993	Domestic	MOORE	Ozark	10

Total number of wells located 2 to 3 Miles from the Litton Industries Site: 166

3 to 4 Miles

Logmain	000133	827	--	C	C	C	3	29N	22W	1267	--	--	Noncommunity Public	GAS CO.	Ozark	--
Logmain	001515	720	--	C	C	C	3	29N	22W	1432	--	1870	Noncommunity Public	ST.LOUIS & FRISCO R.R.	Ozark	--
Logmain	001883	900	--	SE	W2	W2	10	29N	22W	1301	--	1910	Industrial	ST.LOUIS & FRISCO RR. #2	Ozark	--
Logmain	001884	930	--	SE	W2	C	10	29N	22W	1389	--	1910	Noncommunity Public	ST.LOUIS & FRISCO RR. #3	Ozark	--
Logmain	002488	316	--	NE	NE	NW	21	29N	22W	1280	--	1931	Domestic	CHANEY, AL	Ozark	--
Logmain	003418	100	--	N2	SE	SW	3	29N	22W	1148	--	1935	Noncommunity Public	KGBX RADIO STATION	Springfield Plateau	--

-monitoring wells located within 4.0 mile of the Litton Industries Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
Logmain	011578	375	--	SW	SW	NW	21	29N	22W	1220	--	1950	Domestic	CLINTON, W.H.	Ozark	5
Logmain	012684	227	--	SW	NW	NE	3	29N	23W	1231	130	1954	Domestic	McCONELL, J.A.	Springfield and/or Ozark	10
Logmain	014800	1275	--	SE	SW	NW	10	29N	22W	1298	--	1956	Industrial	FRISCO RAILROAD #4	Ozark	602
Logmain	015366	169	--	SE	SW	SW	15	29N	23W	1269	75	1956	Domestic	WILZY, FRANK	Springfield Plateau	3
Logmain	015415	100	--	NW	NW	NW	30	29N	22W	1292	27	1956	Domestic	TILLMAN, DR. W.W.	Springfield Plateau	26
Logmain	016965	335	--	N2	NW	NE	3	29N	22W	1195	140	1953	Domestic	SELPH, TILLMAN D.	Ozark	3
Logmain	017223	320	--	SW	SE	SW	21	29N	22W	1233	220	1958	Domestic	GREEN, DELMER	Ozark	8
Logmain	017652	460	--	S2	SW	SW	3	29N	22W	1246	--	1958	Domestic	LYONS, LAWRENCE	Ozark	--
Logmain	018687	325	--	NW	SE	SE	15	29N	23W	1273	160	1959	Domestic	ISLEY, ELMER	Ozark	16
Logmain	020318	340	--	SW	S2	C	21	29N	22W	1226	190	1961	Domestic	GREY, CLAUDE	Ozark	14
Logmain	022777	360	--	NE	NW	NW	30	29N	22W	1242	170	1960	Domestic	WILLIAMS, TRUMAN	Ozark	--
Logmain	026073	500	--	C	S2	SW	3	29N	22W	--	--	1968	Domestic	TINSLEY, REX	Ozark	20
Logmain	026075	640	--	SW	SW	SW	23	29N	23W	1272	--	1969	Noncommunity Public	STANDARD OIL STATION	Ozark	--
Logmain	027338	520	--	SW	SW	SE	24	29N	23W	1210	--	1973	Community Public	KOA CAMPGROUND	Ozark	--
Logmain	027651	500	--	SW	NW	SE	34	30N	22W	1150	--	1974	Noncommunity Public	RITTER SPRING PARK	Ozark	--
PWS	41139	1275	405	SW	NE	SE	10	29N	22W	--	500	1956	Industrial	Burlington Northern Railroad	Ozark	450
PWS	42043	520	425	SW	SW	SW	24	29N	23W	--	150	1973	Non-community Public	Springfield KOA	Ozark	12
PWS	42366	360	252	C	C	N2	33	30N	22W	--	60	1986	Non-community Public	Fantastic Caverns	Ozark	50
PWS	42367	180	--	C	C	N2	33	30N	22W	--	--	1962	Non-community Public	Fantastic Caverns	Ozark	--
PWS	50504	500	160	NE	SE	SW	34	30N	22W	--	--	1974	Non-community Public	Ritter Springs Park	Ozark	--
WIMS	100010	591	319	NW	NE	NW	25	29N	23W	1285	198	1994	Domestic	HENRY	Ozark	10
WIMS	100807	510	359	C	C	C	33	30N	22W	--	140	1994	Domestic	SMALLEY	Ozark	15
WIMS	119474	425	105	NW	NE	NW	3	29N	23W	1200	120	1994	Domestic	TOWNSAND	Ozark	10
WIMS	126173	440	100	C	SE	NW	25	29N	23W	--	90	1994	Domestic	MILLER	Ozark	10
WIMS	12953	--	--	C	SE	NE	29	29N	22W	--	--	1988	Domestic	EFFERSON	Unknown	12
WIMS	134768	456	--	C	C	SW	22	29N	23W	--	--	1995	Domestic	HENSON	Ozark	--
WIMS	135527	365	189	NW	NW	SE	29	30N	22W	--	90	1995	Domestic	GRAY	Ozark	10
WIMS	13605	480	281	C	C	C	30	29N	22W	1225	265	1989	Domestic	KEN	Ozark	--
WIMS	13611	355	210	C	C	C	28	30N	22W	1100	90	1989	Domestic	FLOYD	Ozark	14
WIMS	13614	504	315	C	SE	SE	25	30N	23W	1200	128	1988	Domestic	HUGHES	Ozark	12
WIMS	13693	475	153	C	NW	NW	11	29N	22W	1280	250	1989	Domestic	POINDEXTER	Ozark	--

-monitoring wells located within 4.0 mile of the Litton Industries Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
WIMS	22	368	126	C	NW	NW	22	29N	23W	--	100	1986	Domestic	ALBRECHT	Ozark	--
WIMS	231976	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	232302	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	232349	330	123	SE	SW	SW	27	30N	22W	1120	--	1999	Domestic	WILLIAMS	Ozark	--
WIMS	232372	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	233638	645	378	NE	SE	NW	31	30N	22W	1220	150	2000	Domestic	--	Ozark	60
WIMS	238139	445	105	SW	SW	NE	15	29N	23W	1270	180	2000	Domestic	BATSON	Ozark	20
WIMS	248055	512	105	SW	SW	SW	14	29N	23W	1280	180	2000	--	KINDRICK	Ozark	7
WIMS	248696	405	105	SW	SE	SW	28	30N	22W	1130	90	2000	Domestic	COX	Ozark	10
WIMS	251354	--	--	C	C	C	25	29N	23W	--	--	2000	Domestic	TAYLOR	Unknown	20
WIMS	252807	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	253940	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	257444	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	259979	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	266112	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	272174	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	273202	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	273255	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281874	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281875	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	281876	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	2918	570	372	C	SW	NW	29	29N	22W	--	280	1987	Domestic	WILSON	Ozark	10
WIMS	293862	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	293866	--	--	C	C	C	0	--	--	--	--	--	--	--	Unknown	--
WIMS	33482	640	--	C	C	C	30	29N	22W	--	320	1989	Domestic	BAUMBERGER	Ozark	10
WIMS	33570	202	--	C	C	C	30	30N	22W	--	--	1999	Domestic	UNDERDAL	Ozark	10
WIMS	34616	355	150	C	C	C	34	30N	22W	1100	90	1989	--	PALMER	Ozark	3
WIMS	35741	510	235	C	SW	SW	19	29N	22W	1240	150	1989	--	HASELTINE	Ozark	--
WIMS	3811	265	147	C	SE	NE	33	30N	22W	--	120	1987	Domestic	MCLAUGHLIN	Ozark	12
WIMS	39118	405	189	C	NE	SE	34	30N	22W	1200	100	1990	Domestic	TINDLE	Ozark	14
WIMS	40795	450	205	C	SE	NE	36	30N	23W	1205	120	1989	Domestic	HUNT	Ozark	--

Table 2: Aquifer, Stratigraphy, and Hydrology of the Litton Industries Site

System	Stratigraphic Unit	Thickness (feet)	Lithology	Nature of Porosity and Permeability	Hydraulic Conductivity (cm/sec)	Hydrologic Unit
Post Mississippian	**Soil and Residuum**	10 - 60	Cherty, silty clay	Intergranular space throughout matrix with exception of clay; Moderate to rapid permeability	$1.4x10^{-4}$ - $4.2x10^{-3}$	None
Mississippian	**Burlington-Keokuk Limestones, Reeds Spring Formation, and Fern Glen Formation**	195 - 245	Cherty, coarse-grained, fossiliferous limestone	Limestone bedding seperations, fractures, and dissolution features; Moderate to high permeability	7.8×10^{-3}	Springfield Plateau Aquifer
Mississippian	**Northview Formation**	30	Argillaceous limestone and shale	Bedding seperations, fractures, and possible dissolution features; Moderately low permeability	$1x10^{-6}$ - $5x10^{-6}$	Ozark Confining Unit
Ordovician	**Cotter and Jefferson City Dolomites, Roubidoux Formation, and Gasconade Dolomite**	approx. 1200	Dolomite, cherty dolomite, sandstone, dolomitic sandstone, argillaceous dolomite, and minor shales	Bedding seperations and fractures; Moderate permeability	1×10^{-4} - 1×10^{-5}	Ozark Aquifer
Cambrian	**Eminence and Potosi Dolomites**					
Cambrian	**Derby-Doe Run Dolomites**	150	Medium-crystalline dolomite with beds of silt, shale, and sand	Bedding seperations and fractures; Moderate to low permeability	$1x10^{-6}$	St. Francois Confining Unit

Table 3: Springs located within 4.0 miles of the Litton Industries site, Greene County, Missouri								
ID Number	Distance	Name	Location within Section	Section	Township	Range	Elevation	Flow (gpm)
770152	3 to 4 Miles	CLEAR CREEK SPRING	NW1/4, SW1/4, NW1/4 (long section)	3	29N	23W	1155	NA
770153	3 to 4 Miles	CROOK (JIM) SPRING	NW1/4, SW1/4, SW1/4 (long section)	3	29N	23W	1150	NA
770154	3 to 4 Miles	GARDNER SPRING	NW1/4, SW1/4, SW1/4 (long section)	2	29N	23W	1155	NA
770156	3 to 4 Miles	FANTASTIC CAVERNS SP	NE1/4, NW1/4, NE1/4	33	30N	22W	1100	NA
770157	3 to 4 Miles	PARRISH SPRING	SW1/4, SW1/4, SW1/4	28	30N	22W	1085	100 - 450
770162	3 to 4 Miles	UNNAMED SPRING	NW1/4, NW1/4, SW1/4	28	30N	22W	1160	NA
770004	3 to 4 Miles	CLEAR CREEK PARK SPRING	NW1/4, SW1/4, SW1/4 (long section)	3	29N	23W	1160	450-4,500
770028	3 to 4 Miles	STODDARD SPRING	NW1/4, NW1/4, NW1/4	32	30N	22W	1120	1 - 10
770031	3 to 4 Miles	RITTER PARK SPRING	NW1/4, NW1/4, SE1/4	34	30N	22W	1075	10-100
770033	2 to 3 Miles	RITTER SPRING (WEST)	SE1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1125	450-4,500
770034	3 to 4 Miles	RITTER SPRING (EAST)	NW1/4, NW1/4, SW1/4 (long section)	3	29N	22W	1125	450-4,500
770062	3 to 4 Miles		NW1/4, NE1/4, NE1/4 (long section)	4	29N	22W	1095	NA
770072	3 to 4 Miles	QUARRY WALL SPRING	NE1/4, SE1/4, SE1/4	25	30N	23W	1210	NA
770074	3 to 4 Miles	WILLIAMS SPRING	NW1/4, NE1/4, NE1/4	33	30N	22W	1090	450-4,500
770075	3 to 4 Miles		NE1/4, NE1/4, NE1/4	33	30N	22W	1110	NA
770076	3 to 4 Miles		NE1/4, NE1/4, NE1/4	33	30N	22W	1080	NA
770077	3 to 4 Miles		NW1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1110	NA
770078	3 to 4 Miles	FIREPLACE SPRING	SE1/4, SE1/4, NE1/4 (long section)	4	29N	22W	1110	NA
770084	2 to 3 Miles	VICH SPRING	SE1/4, NE1/4, SW1/4 (long section)	3	29N	22W	1260	NA
770107	2 to 3 Miles		NW1/4, NE1/4, NE1/4 (long section)	5	29N	22W	1245	NA
770201	3 to 4 Miles	PERTUCHE SPRING	SE1/4, SW1/4	28	30N	22W	1050	1 - 10

Springs were autoplotted from ArcView shapefiles. gpm=gallons per minute.

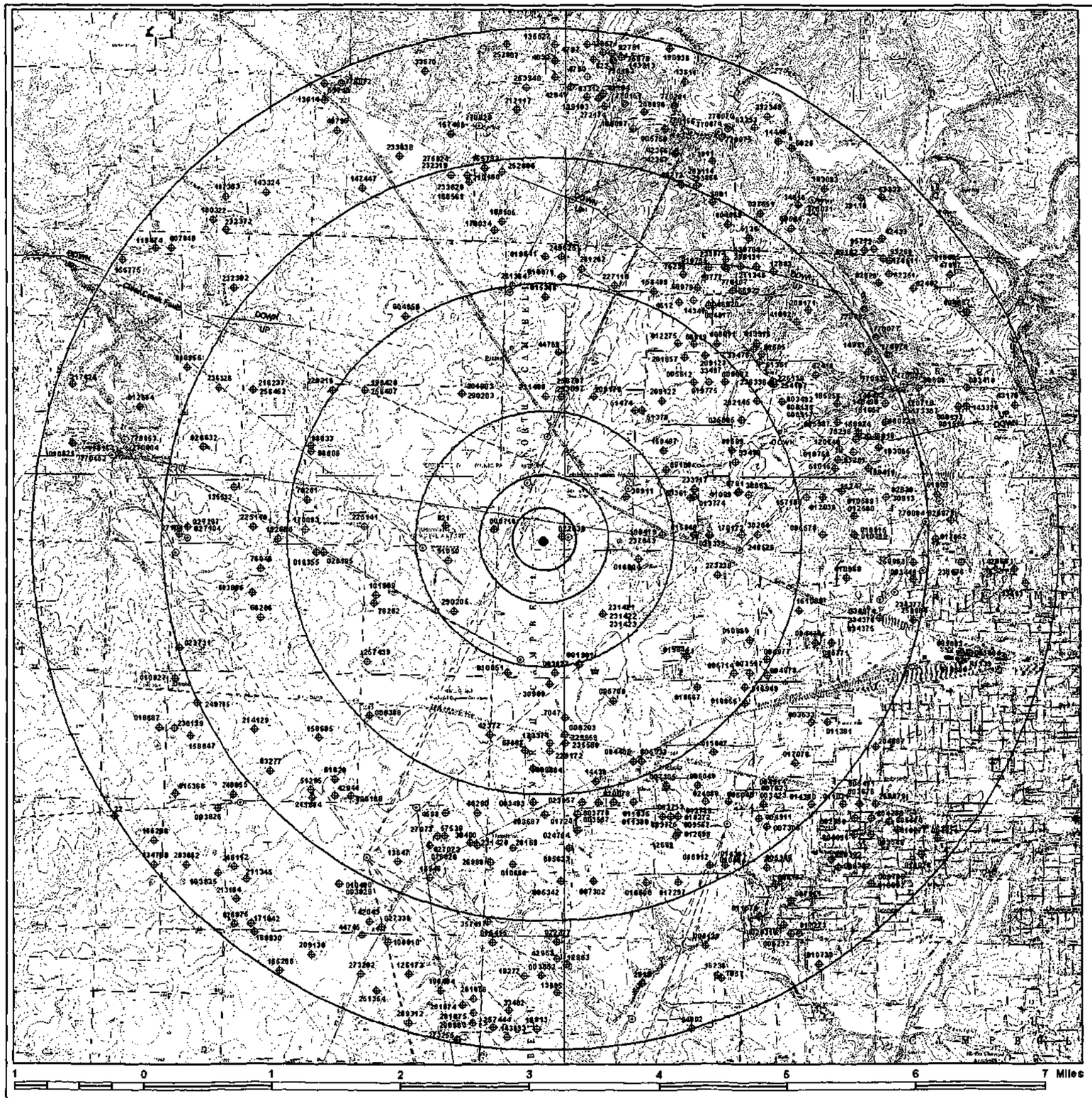


Figure 1:

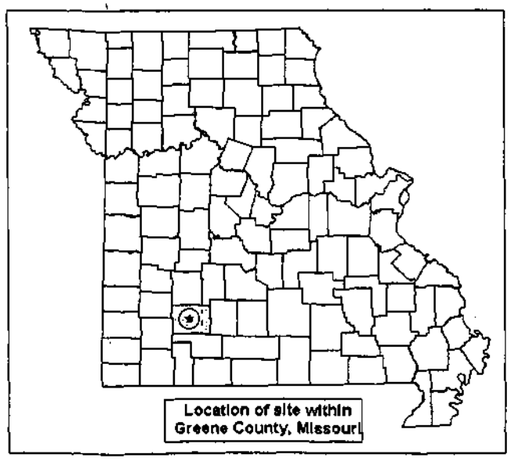
Four-Mile Well Survey
Litton Industries Site
Greene County, Missouri
December 17, 2003

Target Limits
- 0.25 Mile
- 0.5 Mile
- 1 Mile
- 2 Miles
- 3 Miles
- 4 Miles

N W E S

- Litton Industries Site
- Well from MDNR/WPSCD Public Drinking Water Program(PDWP)
- Certified well from the Well Information Management System (WIMS) MDNR/GSRAD Wellhead Protection Section
- Well from MDNR/GSRAD sample well-log library (Logmain)
- Spring from MDNR/GSRAD spring database
- Dye injection point location from GSRAD MEGA database
- Dye reception point location from GSRAD MEGA database
- Connection line between dye injection and reception points (GSRAD MEGA)
- UP / DOWN Observed fault. South side thrown down.
- DOWN / UP Speculated fault. North side thrown down.

Well and spring locations were autoplotted from ArcView shapefiles and are accurate to within the smallest quarter section according to Table 1.



Base maps are taken from USGS 1:24,000 scale 37093-B3-TF-024 (Springfield), 37093-B4-TF-024 (Brookline), 37093-C3-TF-024 (Ebenezer), and 37093-C3-TF-024 (Willard) 7.5-minute quadrangles.

CITY UTILITIES

Bringing Power Home.

February 16, 2006

Prepared for: Rebecca Wells-Albers
Environmental Specialist
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

RECEIVED

FEB 21 2006

Hazardous Waste Program
MO Dept. of Natural Resources

Rebecca –

In response to your email dated 1/23/06, we are providing the following information:

Names of Drinking Water Sources For City Utilities:
Stockton Lake
Fellows Lake
McDaniel Lake
James River
Fulbright Spring
Well No. 1 (at Fulbright Water Treatment Plant)
Well No. 13 (at Blackman Water Treatment Plant)
Wells No. 10, 11, and 12 in the distribution system

Sources Within Four Miles of the Six Sites Under Investigation:
Well No. 1 (at Fulbright Water Treatment Plant)
Fulbright Spring (at Fulbright Water Treatment Plant)
Well No. 10 (Orchard Crest)

See the attached sheet for the FY2005 contributions from each source.

Two maps attached:
- **"City Utilities Water Facilities" shows locations of all facilities**
- **"Hydraulics of Multiple Source Influence" shows zones of mixing between various sources**

Please do not hesitate to call if you have questions.

Sincerely,

Amy Ruggeri

Amy Ruggeri, P.E.
City Utilities
P.O. Box 551
Springfield, MO 65801
417-831-8779

WATER TREATMENT DEPARTMENT MONTHLY SUMMARY OF PUMPAGES IN MILLION GALLONS

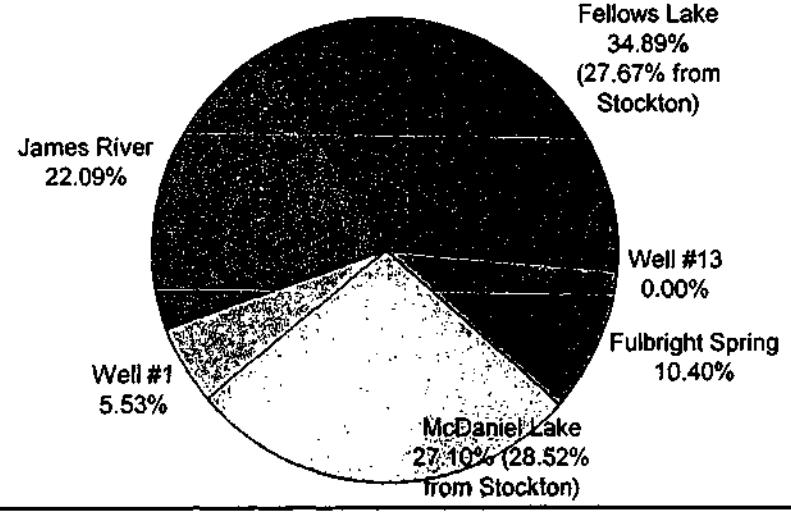
FOR FY 2004-2005

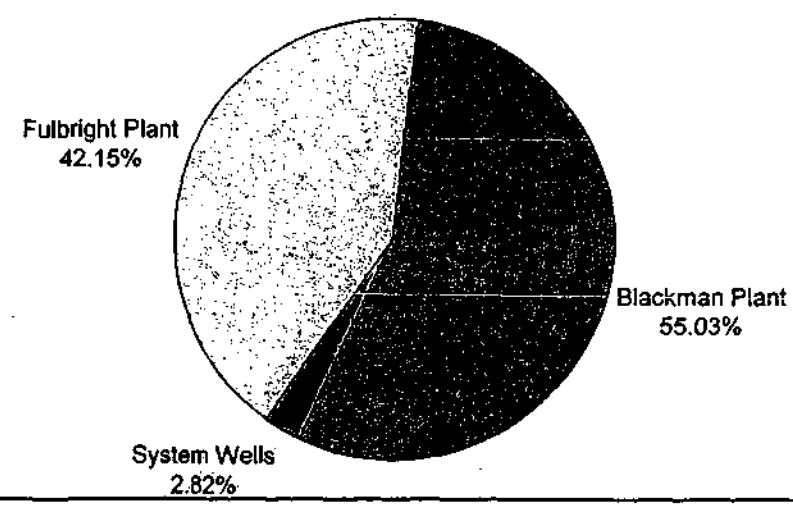
	FULBRIGHT RAW				BLACKMAN RAW				SYSTEM FINISH WELLS			TOT.	WASHWATER		RAW WATER TRANSFERS				
MO	SPG.	MCD.	WL#1	FIN.	J.R.	F.L.	WL13	FIN.	10	11	12	*FIN	FTP	BTP	STL to FEL	STL to MCD	FEL to MCD	JR to FEL	FEL to JR**
Oct	23.63	280.25	90.67	365.12	186.79	352.47	0.00	560.94	9.63	9.88	56.04	1001.61	6.45	10.80	191.38	228.55	0.00	0.00	0.00
Nov	117.71	121.33	87.59	283.41	368.23	70.30	0.00	458.52	7.24	8.47	33.62	791.26	5.59	7.56	466.16	4.13	0.00	0.00	0.00
Dec	143.96	151.78	35.98	343.57	447.37	28.64	0.00	496.16	0.00	0.00	0.00	839.73	5.91	7.92	0.00	0.00	0.00	0.00	0.00
Jan	56.37	256.40	2.59	335.50	282.00	202.50	0.00	502.87	0.00	0.00	0.00	838.37	5.47	8.62	0.00	0.00	0.00	0.00	0.00
Feb	79.35	220.22	0.00	316.87	409.18	13.28	0.00	453.81	0.00	0.00	0.00	770.68	4.79	7.02	0.00	0.00	0.00	0.00	0.00
Mar	103.63	284.88	0.00	407.71	273.42	138.97	0.00	449.64	0.00	0.00	0.00	857.35	4.99	7.74	0.00	0.00	0.00	0.00	0.00
Apr	149.89	219.59	0.00	391.86	294.34	156.74	0.00	467.59	0.00	0.00	0.00	860.60	5.11	8.46	0.00	0.00	0.00	0.00	0.00
May	154.78	281.79	64.12	511.48	0.00	579.43	0.00	586.07	0.00	0.00	33.65	1131.20	7.27	11.70	0.00	0.00	0.00	0.00	0.00
Jun	115.99	312.31	90.99	555.42	0.00	686.03	0.00	678.67	0.00	0.00	44.99	1279.08	7.34	13.32	0.00	0.00	0.00	0.00	0.00
Jul	70.41	392.58	91.44	607.50	1.41	740.25	0.00	729.64	7.59	4.18	47.06	1395.97	9.30	14.22	1.27	273.23	0.00	0.00	0.00
Aug	68.69	364.11	89.63	567.57	34.15	645.30	0.00	680.58	12.18	0.67	44.13	1305.13	8.76	12.42	146.58	285.53	0.00	0.00	0.00
Sep	116.47	244.84	85.71	481.90	255.20	416.11	0.00	681.70	11.23	13.90	1.52	1190.25	6.86	11.88	309.69	101.21	0.00	0.00	0.00
TOT.	1200.88	3130.08	638.72	5167.91	2552.09	4030.02	0.00	6746.19	47.87	37.09	261.02	12261.23	77.85	121.86	1115.08	892.65	0.00	0.00	0.00
				42.15				55.02	Total	Wells	2.82								

*TOTAL FINISH = FINISH FULBRIGHT + FINISH BLACKMAN + FINISH/SYSTEM

**SUPPLEMENTAL COOLING CAPACITY FOR LAKE SPRINGFIELD

			11551.79											
Total Raw	Fulbright S	McDaniel L	Well #1	James Riv	Fellows La	Well #13						Fulbright Plan	Blackman Plant	System Wells
%	10.40%	27.10%	5.53%	22.09%	34.89%	0.00%				TOTAL FINISHED SOURCES		42.15%	55.02%	2.82%





Unscanned Items

A map or maps that could not be scanned
exist with this document
or as a document
To view the maps, please contact the
Superfund Records Center

U.S. Environmental Protecti

Safe Drinking Water Information System (S

Query Results

Report an Error

Query Selections:
State selected: **MISSOURI**
County selected: **GREENE**
Population Selected: **Very Small (0-500), Small (501-3,300), Medium (3,301-10,000), Large (10,001-100,000), Very Large (100,000+)**
water_system_status: **Both--Active/Closed**
Query executed on: **SEP-26-2006**
Results are based on data extracted on : **JUL-05-2006**

List of Water Systems in SDWIS

Information about water systems in MISSOURI is maintained by Department of Natural Resources .

To obtain additional information about drinking water please call EPA's Safe Drinking Water hotline at 1-800-426-4791.

Community Water Systems: Water Systems that serve the same people year-round (e.g. in homes or businesses).

Water System Name	County(s) Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
ACRES OF SHADE MHP	GREENE	109	Groundwater	Active		MO5048082
ASH GROVE	GREENE	1200	Groundwater	Active		MO5010032
COLONY COVE MHP	GREENE	140	Groundwater	Active		MO5048264
COUNTRY ESTATES MHP	GREENE	140	Groundwater	Active		MO5048237
COUNTRY SQUIRE VILLAGE	GREENE	142	Groundwater	Active		MO5048107
CROSS ROADS ACRES	GREENE	60	Groundwater	Active		MO5036187
EASTBOUROUGH SUBD	GREENE	100	Groundwater	Active		MO5036258
FAIR HAVEN CHILDRENS HOME	GREENE	45	Groundwater	Active		MO5069056
GREENE CO PWSD #1	GREENE	5730	Groundwater	Active		MO5024228
GREENE CO PWSD #5	GREENE	1075	Groundwater	Active		MO5024230
GREENE CO PWSD #6	GREENE	360	Groundwater	Active		MO5024231
GREENE HILLS WATER ASSN	GREENE	77	Groundwater	Active		MO5031115
JAMES RIVER ADDITION	GREENE	225	Groundwater	Active		MO5036115
MEADOWS WATER COMPANY	GREENE	2670	Groundwater	Active		MO5036174
[redacted]CREST ESTATES MOBILE HOME SUBD	GREENE	210	Groundwater	Active		MO5048194
PEACE OF MIND ESTATES	GREENE	60	Groundwater	Active		MO5036241
PEMBROOK VILLAGE						

SUBD	GREENE	30	Groundwater	Active		MO5036304
RANKIN ACRES SUBD	GREENE	216	Groundwater	Active		MO5036147
REPUBLIC	GREENE	8500	Groundwater	Active		MO5010681
ROCKRIDGE ESTATES SUBD	GREENE	77	Groundwater	Active		MO5030781
SHADY ACRES MHP	GREENE	86	Groundwater	Active		MO5048013
SILVER BELL MOBILE HOME PARK	GREENE	130	Groundwater	Active		MO5048145
SPRINGFIELD	GREENE	149237	Surface_water	Active		MO5010754
STRAFFORD	GREENE	1080	Groundwater	Active		MO5010768
SUBURBAN ACRES MOBILE HOME PARK	GREENE	100	Groundwater	Active		MO5048400
SUSSEX PARK SUBD	GREENE	130	Groundwater	Active		MO5036150
THE LANDING SUBDIVISION	GREENE	90	Groundwater	Active		MO5036218
THE WILLOW UTILITY COMPANY	GREENE	850	Groundwater	Active		MO5048099
TIMBERCREST MOBILE HOME PARK	GREENE	195	Groundwater	Active		MO5048165
WADSWORTH PARK UNIT 4&5	GREENE	175	Groundwater	Active		MO5036109
WALNUT GROVE	GREENE	670	Groundwater	Active		MO5010829
WHISPERING LANE MHP	GREENE	170	Groundwater	Active		MO5048075
WILDEN HEIGHTS SUBD	GREENE	52	Groundwater	Active		MO5036192
WILLARD	GREENE	4500	Groundwater	Active		MO5010860
BRIARWOOD MHP	GREENE	352	Groundwater	Closed	01/01/1996	MO5048159
CEDAR HILLS SUBD	GREENE	25	Groundwater	Closed	07/01/2000	MO5036034
CENTRAL BIBLE COLLEGE	GREENE	1100	Groundwater	Closed	07/01/1985	MO5069074
EAST SUNSHINE MHP	GREENE	40	Groundwater	Closed	03/01/1991	MO5048140
HEATHERWOODS SUBD	GREENE	75	Groundwater	Closed	06/01/1994	MO5036262
HICKORY VILLAGE SUBD	GREENE	40	Groundwater	Closed	04/01/1990	MO5036093
HOMESTEAD ACRES MHP	GREENE	327	Groundwater	Closed	05/01/1996	MO5048255
LAKEWOOD MHP	GREENE	175	Groundwater	Closed	04/01/1985	MO5048218
MOBILE GARDENS TRAILER PARK	GREENE	25	Groundwater	Closed	10/01/1982	MO5048149
OAK SHADE MOBILE VILLA	GREENE	30	Groundwater	Closed	03/01/1994	MO5048219
OZARK HIGHLANDS MHP	GREENE	470	Groundwater	Closed	10/01/1990	MO5048220
REPUBLIC ESTATES	GREENE	39	Groundwater	Closed	07/01/1996	MO5069027
RIDGEVIEW TERRACE SUBD	GREENE	60	Groundwater	Closed	01/01/1984	MO5036190
SEQUIOTA WATER CO	GREENE	55	Groundwater	Closed	08/01/1992	MO5036245
SOUTHWEST VILLAGE	GREENE	150	Groundwater	Closed	06/01/1990	MO5036116
SUBURBAN SUBDIVISION	GREENE	26	Groundwater	Closed	01/01/1995	MO5031075
U.S. MEDICAL CENTER FEDERAL PR	GREENE	1650	Groundwater	Closed	01/01/2000	MO5069028
VALLEY PARK SUBD	GREENE	70	Groundwater	Closed	04/10/2006	MO5036119
VILLAGE WEST MHP	GREENE	130	Groundwater	Closed	03/01/2001	MO5048166
WALTER SCHMITT SUBD	GREENE	43	Groundwater	Closed	11/01/1997	MO5036266

N[redacted]Transient Non-Community Water Systems: Water Systems that serve the same people, but not year-round (e.g. sc[redacted]ols that have their own water system).

Water System Name	County(s) Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
CODYS STORE #2	GREENE	39	Groundwater	Active		MO5292389
FAA ATCT	GREENE	40	Groundwater	Active		MO5102365
FANTASTIC CAVERNS	GREENE	500	Groundwater	Active		MO5200204
G.E. COMPANY	GREENE	830	Groundwater	Active		MO5182240
GENERAL COUNCIL ASMBLIES OF GOD	GREENE	1070	Groundwater	Active		MO5069088
HARMONY GLORY GANG	GREENE	30	Groundwater	Active		MO5272346
HOODS SERVICE CENTER INC	GREENE	1000	Groundwater	Active		MO5212053
JAMES RIVER POWER STATION	GREENE	85	Groundwater	Active		MO5188308
KRAFT FOODS	GREENE	1200	Groundwater	Active		MO5180648
LOGAN-ROGERSVILLE HIGH SCHOOL	GREENE	25	Groundwater	Active		MO5172701
LOGAN-ROGERSVILLE PRIMARY SCHOOL	GREENE	450	Groundwater	Active		MO5171169
MISSISSIPPI LIME COMPANY	GREENE	60	Groundwater	Active		MO5180646
PAUL MUELLER COMPANY	GREENE	860	Groundwater	Active		MO5181512
PLEASANT VIEW SCHOOLS	GREENE	895	Groundwater	Active		MO5172058
RIDEWELL CORPORATION	GREENE	25	Groundwater	Active		MO5182477
ROADWAY EXPRESS, INC	GREENE	100	Groundwater	Active		MO5181564
SOLO CUP CO	GREENE	700	Groundwater	Active		MO5182222
SOUTHWEST POWER STATION	GREENE	50	Groundwater	Active		MO5188304
SOUTHWEST TREATMENT PLANT	GREENE	50	Groundwater	Active		MO5182118
BURLINGTON NORTHERN & SANTA FE RLWY	GREENE	300	Groundwater	Closed	05/01/2002	MO5182246
COMBS' STATION & GROCERY	GREENE	125	Groundwater	Closed	06/01/1988	MO5181352
CONCO QUARRIES	GREENE	30	Groundwater	Closed	12/01/1994	MO5188035
CONOCO STATION	GREENE	100	Groundwater	Closed	08/01/1989	MO5181350
DAYCO CORP	GREENE	25	Groundwater	Closed	01/01/1988	MO5180647
DEER LAKE GOLF COURSE	GREENE	35	Groundwater	Closed	10/01/1998	MO5201718
HEATWAY	GREENE	45	Groundwater	Closed	08/01/1996	MO5181068
HICKORY HILLS COUNTRY CLUB	GREENE	200	Groundwater	Closed	09/01/1995	MO5200094
H[redacted]ORY HILLS SCHOOLS	GREENE	810	Groundwater	Closed	04/01/1983	MO5172052
LOGAN-ROGERSVILLE MIDDLE SCHOOL	GREENE	500	Groundwater	Closed	12/21/2004	MO5171256
LOVE-N-CARE NO 3	GREENE	353	Groundwater	Closed	01/01/1992	MO5258073

MIDWEST ALUMINUM MFG INC	GREENE	47	Groundwater	Closed	02/01/1990	MO5181513
PEPSI COLA GENERAL BOTTLE	GREENE	104	Groundwater	Closed	01/01/1990	MO5180652
SEQUIOTA ELEM SCHOOL	GREENE	200	Groundwater	Closed	09/01/1982	MO5172059
WEE CARE DEVELOPMENT CENTER	GREENE	28	Groundwater	Closed	09/01/2001	MO5271861

Transient Non-Community Water Systems: Water Systems that do not consistently serve the same people (e.g. rest stops, campgrounds, gas stations).

Water System Name	County(s) Served	Population Served	Primary Water Source Type	System Status	Date Closed	Water System ID
AGAPE LIFE FELLOWSHIP	GREENE	25	Groundwater	Active		MO5272441
AMERICAN LEGION POST #676	GREENE	400	Groundwater	Active		MO5218149
ANDY DALTON SHOOTING RANGE TRN CTR	GREENE	25	Groundwater	Active		MO5141078
BIT OF BAVARIA	GREENE	25	Groundwater	Active		MO5211416
BOLTONS GENERAL STORE	GREENE	35	Groundwater	Active		MO5258076
BROOKLINE BAPTIST CHURCH	GREENE	60	Groundwater	Active		MO5270364
CHURCH OF THE HARVEST	GREENE	150	Groundwater	Active		MO5271629
CITIZENS BANK OF ROGERSVILLE	GREENE	25	Groundwater	Active		MO5182744
CODY STORE	GREENE	25	Groundwater	Active		MO5290086
COLONIAL MOTOR LODGE	GREENE	25	Groundwater	Active		MO5192051
CROSSROADS CONVENIENCE STORE	GREENE	900	Groundwater	Active		MO5258164
DALMAS FEED BUNK CAFE	GREENE	725	Groundwater	Active		MO5282587
DEALERS AUTO AUCTION	GREENE	30	Groundwater	Active		MO5218048
EVERGREEN CHURCH	GREENE	225	Groundwater	Active		MO5272435
EXPRESS LANE #7	GREENE	56	Groundwater	Active		MO5258072
GORDONS COUNTRY STORE	GREENE	25	Groundwater	Active		MO5282520
GREEN HILLS COUNTRY CLUB	GREENE	100	Groundwater	Active		MO5036094
JD LEE & SONS FUNERAL HOME	GREENE	25	Groundwater	Active		MO5282754
JUMP STOP #30M	GREENE	30	Groundwater	Active		MO5258313
JUMP STOP #9	GREENE	300	Groundwater	Active		MO5292347
KAD-E-KORNER	GREENE	25	Groundwater	Active		MO5292515
NATHAN BOONE STATE HISTORICAL SITE	GREENE	25	Groundwater	Active		MO5122454
NORTHWEST BAPTIST CHURCH	GREENE	80	Groundwater	Active		MO5272307
PLAYERS SOFTBALL COMPLEX	GREENE	160	Groundwater	Active		MO5208057

RITTER SPRINGS PARK	GREENE	25	Groundwater	Active		MO5161591
SPRINGFIELD KOA	GREENE	90	Groundwater	Active		MO5240126
SPRINGFIELD SKATELAND	GREENE	25	Groundwater	Active		MO5210110
SPRINGHILL BAPTIST CHURCH	GREENE	600	Groundwater	Active		MO5272759
STRAFFORD SPORTS COMPLEX	GREENE	316	Groundwater	Active		MO5218058
SUNSHINE VALLEY FARM CAFE	GREENE	30	Groundwater	Active		MO5282404
TEMPLE ISRAEL	GREENE	50	Groundwater	Active		MO5271587
VIRGILS BAR & SELF STORAGE	GREENE	25	Groundwater	Active		MO5212683
WILSON CREEK BAPTIST CHURCH	GREENE	120	Groundwater	Active		MO5272758
WILSON CREEK BATTLEFIELD MONUMENT	GREENE	25	Groundwater	Active		MO5102181
WIMPYS/ THE CORNER STORE	GREENE	25	Groundwater	Active		MO5291060
BAIR'S GROCERY	GREENE	511	Groundwater	Closed	05/01/1997	MO5258077
BASS CHAPEL BAPTIST CHURCH	GREENE	45	Groundwater	Closed	01/01/1995	MO5271474
BEST BUDGET INN	GREENE	55	Groundwater	Closed	01/01/1991	MO5192055
CEDAR BLUFF BAPTIST CHURCH	GREENE	25	Groundwater	Closed	01/01/1992	MO5271731
DX TRAVEL MART	GREENE	75	Groundwater	Closed	04/01/1992	MO5240061
EASTGATE MOTEL	GREENE	40	Groundwater	Closed	01/01/1991	MO5190912
FAST'N FRIENDLY/EVANS RD	GREENE	205	Groundwater	Closed	03/01/1995	MO5258074
FIRST EVANGELICAL FREE CHURCH	GREENE	30	Groundwater	Closed	09/01/2002	MO5271704
GENERAL STORE	GREENE	61	Groundwater	Closed	08/04/2005	MO5258079
GRIESEMER STONE CO	GREENE	40	Groundwater	Closed	05/01/1992	MO5230651
HOOD'S MOTEL	GREENE	30	Groundwater	Closed	06/01/1991	MO5191613
HOODS SERVICE CENTER	GREENE	50	Groundwater	Closed	08/01/1991	MO5231353
HOWARDS AUCTION	GREENE	25	Groundwater	Closed	02/01/1993	MO5210105
INDIAN BLUFF GOLF COURSE	GREENE	25	Groundwater	Closed	12/01/1995	MO5201379
J&R NEW MT EMBLEM RESTAU RANT	GREENE	208	Groundwater	Closed	10/01/2001	MO5210002
LAIRDS COUNTRY STORE	GREENE	25	Groundwater	Closed	08/01/2003	MO5291630
LARRY'S CONOCO	GREENE	25	Groundwater	Closed	03/01/1991	MO5232054
LONE STAR BAPTIST CHURCH	GREENE	25	Groundwater	Closed	06/01/1992	MO5270366
LONGVIEW GENERAL STORE	GREENE	77	Groundwater	Closed	08/01/1994	MO5232056
MARSHALLS CAFE & MOTEL	GREENE	30	Groundwater	Closed	01/01/1991	MO5210913
MONO MFG CO	GREENE	75	Groundwater	Closed	03/01/1991	MO5230645
MT EMBLEM MOTEL	GREENE	50	Groundwater	Closed	12/01/1990	MO5212057
OZARK TRAVEL STOP	GREENE	100	Groundwater	Closed	10/04/2005	MO5212062

PARAKEET CONOCO & CAFE	GREENE	75	Groundwater	Closed	06/01/1992	MO5211594
RAPID ROBERT'S #102	GREENE	25	Groundwater	Closed	11/01/1996	MO5291071
SILERS SHADY ACRES GOLF COURSE	GREENE	206	Groundwater	Closed	02/01/2002	MO5208040
STALEY STANDARD SERVICE	GREENE	150	Groundwater	Closed	03/01/1991	MO5232061
THE SNACK SHOP	GREENE	50	Groundwater	Closed	06/01/1992	MO5212060
THE WINDSORS	GREENE	50	Groundwater	Closed	10/01/1991	MO5218148
TRAVELERS PARK CAMPGROUND INC	GREENE	50	Groundwater	Closed	03/16/2006	MO5048162
TRI-WAY COUNTRY CLUB	GREENE	75	Groundwater	Closed	12/01/1998	MO5202310

U.S. Census Bureau

State & County QuickFacts

Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 31

Greene County, Missouri

People QuickFacts	Greene County	Missouri
Population, 2005 estimate	250,784	5,800,310
Population, percent change, April 1, 2000 to July 1, 2005	4.3%	3.6%
Population, 2000	240,391	5,595,211
Population, percent change, 1990 to 2000	15.6%	9.3%
Persons under 5 years old, percent, 2004	6.1%	6.5%
Persons under 18 years old, percent, 2004	21.4%	24.1%
Persons 65 years old and over, percent, 2004	13.6%	13.3%
Female persons, percent, 2004	51.3%	51.2%
White persons, percent, 2004 (a)	94.0%	85.4%
Black persons, percent, 2004 (a)	2.4%	11.5%
American Indian and Alaska Native persons, percent, 2004 (a)	0.7%	0.5%
Asian persons, percent, 2004 (a)	1.2%	1.3%
Native Hawaiian and Other Pacific Islander, percent, 2004 (a)	0.1%	0.1%
Persons reporting two or more races, percent, 2004	1.6%	1.3%
Persons of Hispanic or Latino origin, percent, 2004 (b)	2.2%	2.6%
White persons, not Hispanic, percent, 2004	92.0%	83.1%
Living in same house in 1995 and 2000, pct age 5+, 2000	45.9%	53.6%
Foreign born persons, percent, 2000	1.9%	2.7%
Language other than English spoken at home, pct age 5+, 2000	4.0%	5.1%
High school graduates, percent of persons age 25+, 2000	84.7%	81.3%
Bachelor's degree or higher, pct of persons age 25+, 2000	24.2%	21.6%
Persons with a disability, age 5+, 2000	40,876	973,637
Mean travel time to work (minutes), workers age 16+, 2000	19.2	23.8
Housing units, 2004	113,156	2,564,340
Homeownership rate, 2000	63.6%	70.3%
Housing units in multi-unit structures, percent, 2000	20.9%	20.0%
Median value of owner-occupied housing units, 2000	$88,200	$89,900
Households, 2000	97,859	2,194,594
Persons per household, 2000	2.34	2.48
Per capita money income, 1999	$19,185	$19,936
Median household income, 2003	$35,958	$40,870
Persons below poverty, percent, 2003	12.5%	11.6%

	Greene

Business QuickFacts	County	Missouri
Private nonfarm establishments, 2003	7,868	150[redacted]5[1]
Private nonfarm employment, 2003	139,363	2,387,761[1]
Private nonfarm employment, percent change 2000-2003	1.6%	-0.5%[1]
Nonemployer establishments, 2003	17,530	347,644
Manufacturers shipments, 2002 ($1000)	3,453,869	92,909,173
Retail sales, 2002 ($1000)	3,743,851	61,861,163
Retail sales per capita, 2002	$15,392	$10,891
Minority-owned firms, percent of total, 1997	3.6%	6.5%
Women-owned firms, percent of total, 1997	22.1%	25.2%
Housing units authorized by building permits, 2004	2,659	32,791
Federal spending, 2004 ($1000)	1,351,428	45,730,137[1]

Geography QuickFacts	Greene County	Missouri
Land area, 2000 (square miles)	675	68,886
Persons per square mile, 2000	356.1	81.2
FIPS Code	077	29
Metropolitan or Micropolitan Statistical Area	Springfield, MO Metro Area	

1: Includes data not distributed by county.

/

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

FN: Footnote on this item for this area in place of data
NA: Not available
D: Suppressed to avoid disclosure of confidential information
X: Not applicable
S: Suppressed; does not meet publication standards
Z: Value greater than zero but less than half unit of measure shown
F: Fewer than 100 firms

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments

Last Revised: Thursday, 08-Jun-2006 09:33:04 EDT

Missouri Department of Conservation
Policy Coordination Unit
P. O. Box 180
Jefferson City, MO 65102
573-522-4115 X 3250 – Shannon.Cave@mdc.mo.gov

Heritage Review Report

Ms. Nancy Priddy
MO DNR – Hazardous Waste Program
P.O. Box 176
Jefferson City, Missouri 65102-0176
Copies: USFWS:

Project type: Hazardous Substances Investigations (4)

Site Name	Location	Site Name	Location
Mono	UTM 4,122361.86N and 467,426.05W	Tuthill	UTM 4,121,527.92N and 466,435.23W
MO-AVCRAD	UTM 465,542.95N and 4,122,477.71W	Litton	UTM 466,552.49N and 4,122,128.08W

Described in query as: Sensitive Environmental Information Request – Hazardous Substances
Date query received: February 2, 2006

This is not a site clearance letter, but a report of Missouri Department of Conservation records concerning public lands and sensitive resources known to be near and possibly affected by the proposed project. The four sites are fairly close to each other, and to simplify the report a single table is based on a radius of four miles from the triangle cornered at Mono, Tuthill and MO-AVCRAD. While some repeated records are not within 4 miles of one of the sites, at least one instance of each species listed occurs within 4 miles of each site.

Prepared by:
7-Feb-06

Species/habitats with Federal and State concerns:

Scientific Name	Common Name	Federal Status	State Status	State Rank	Quadrangle	Last record	Sec	Twp/Rng
Myotis grisescens	Gray Bat	E	E	S3	Ebenezer	2000-06-21	34	T30N R22W
Amblyopsis rosae	Ozark Cavefish	T	E	S2	Willard	1958-03	2	T29N R23W
Amblyopsis rosae	Ozark Cavefish	T	E	S2	Ebenezer	1996-08-07	33	T30N R22W
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Ebenezer	2000-05-02	28	T30N R22W
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Willard	2000-04-27	36	T30N
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Willard	1999-05-23	30	T30N
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Willard	2000-04-27	25	T30N
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Willard	1999-05-23	30	T30N
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Ebenezer	2000-04-28	29	T30N
Lesquerella filiformis	Missouri Bladder-pod	T	E	S3	Ebenezer	2000-04-28	34	T30N
Lepus californicus	Black-tailed Jackrabbit		E	S1	Willard	1987	1	T29N
Lepus californicus	Black-tailed Jackrabbit		E	S1	Springfield	1987	16	T29N
Amblyopsis rosae recharge area	Ozark Cavefish Recharge Area			S2	Springfield	1989	17	T29N
Thelesperma filifolium var. filifolium	Thelesperma			S2	Ebenezer	1989-04-18	28	T30N

Springfield-Branson Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 32

FEB

Hazardous
MO Dept. of

Thelesperma filifolium var. filifolium	Thelesperma			S2	Ebenezer	1989-05-10	27	T30N R22W
Amblyopsis rosae recharge area	Ozark Cavefish Recharge Area			S2	Ebenezer	2002	6	T29N R22W
Typhlotriton spelaeus	Grotto Salamander			S2S3	Springfield	1995-07-14	1	T29N R22W
Typhlotriton spelaeus	Grotto Salamander			S2S3	Ebenezer	1996-08-07	33	T30N R22W
Typhlotriton spelaeus	Grotto Salamander			S2S3	Ebenezer	1996-03-26	34	T30N R22W
Cambarus setosus	Bristly Cave Crayfish			S3	Ebenezer	1989-11-08	2	T29N R22W
Cambarus setosus	Bristly Cave Crayfish			S3	Springfield	1996-08-15	1	T29N R22W
Cambarus setosus	Bristly Cave Crayfish			S3	Ebenezer	1996-08-07	33	T30N R22W
Chalybion zimmermanni zimmermanni	A Blue Mud Dauber			SU	Springfield	1965-06-24	19	T29N R21W
Effluent cave					Ebenezer	1997-07	33	T30N R22W

STATUS CODES- Federal status derives from the federal Endangered Species Act, administered by the U.S. Fish and Wildlife Service. The ESA provides protection for plants and animals listed as: E = Endangered, T = Threatened, C = Candidate, PE = Proposed Endangered for Federal listing. Consult with U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132) if your project affects a listed species. "State Status" is either E, for "endangered," or blank. "State Rank" codes are:

- *S1=Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. (typically 5 or fewer occurrences or very few remaining individuals)*
- *S2=Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. (6 to 20 occurrences or few remaining individuals or acres)*
- *S3=Rare and uncommon in the state. (21 to 100 occurrences)*
- *SU=Unrankable: Possibly in peril in the state, but status uncertain; need more information.*

Missouri bladderpod (lesquerella filiformis, Federally endangered, State endangered) may occur in the project area on limestone glades or limestone rock outcrops along roadsides or in pastures. The species may persist as a seed bank for several years and not be found during plant surveys. Soil disturbance or fire can stimulate seed germination in the fall, yielding flowering plants the following spring. Best management recommendations may be seen at http://www.mdc.mo.gov/documents/nathis/endangered/bladderpod.pdf

Gray bats (myotis grisescens, Federally endangered, State endangered) are likely to occur in the project area, as they roost in caves and forage over streams, rivers, and reservoirs in this part of Missouri. See http://www.mdc.mo.gov/documents/nathis/endangered/graybat.pdf for best management recommendations.

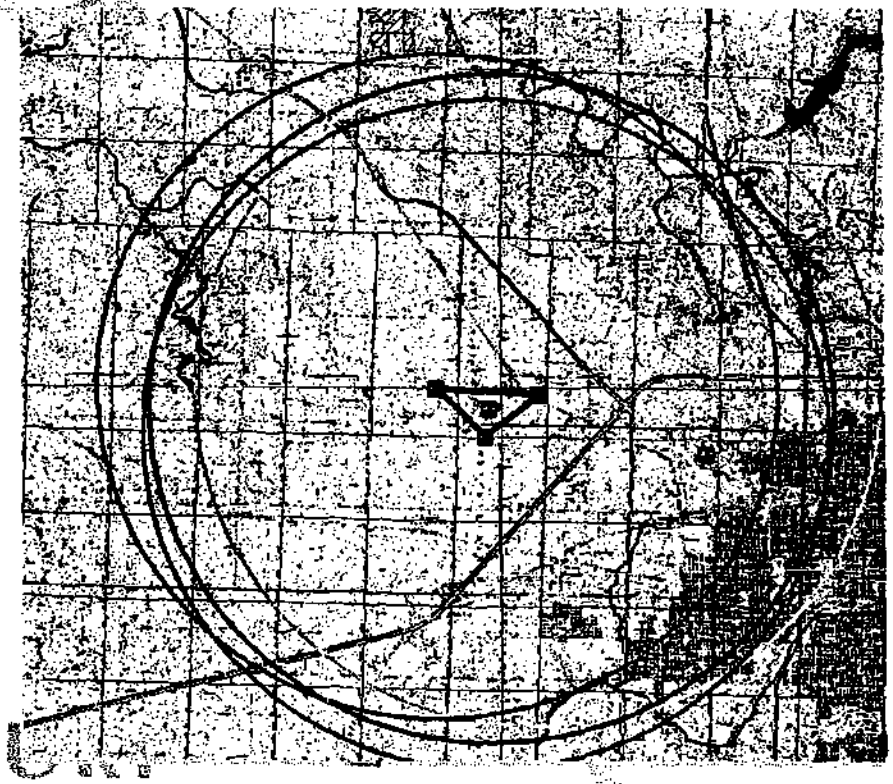
The MO-AVCRAD and Litton sites are in a state designated recharge areas for the Ozark cavefish (*Amblyopsis rosae*), the other two sites within 0.25 miles. All activities that might adversely impact groundwater quality should be avoided. See http://www.mdc.mo.gov/documents/nathis/endangered/o_cavefish.pdf for best-management recommendations.

If you determine that your project is likely to affect subterranean water quality or limestone glades, consult with the Columbia Ecological Services Office, U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181).

Concerns & management recommendations based on site or project details, not related to specific heritage records:
The project area is in region with known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Such features are not routinely identified in heritage records but may be encountered by the project. Since cave fauna are influenced by changes to water quality, every effort should be made to protect groundwater in the project area. See http://www.mdc.mo.gov/documents/nathis/endangered/karst.pdf for best management information.

Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at http://www.mdc.mo.gov/documents/nathis/endangered/streams.pdf

Habitat loss can impact populations of grassland birds native to the area, including barn owls (state endangered), northern harriers (state endangered), Henslow's sparrow (imperiled in the state), and greater prairie-chickens (state endangered). Revegetation with native grasses and other flowering plants will minimize the impact of habitat disturbance. Best management practices may be found on-line at http://www.mdc.mo.gov/nathis/endangered/bmp.htm.

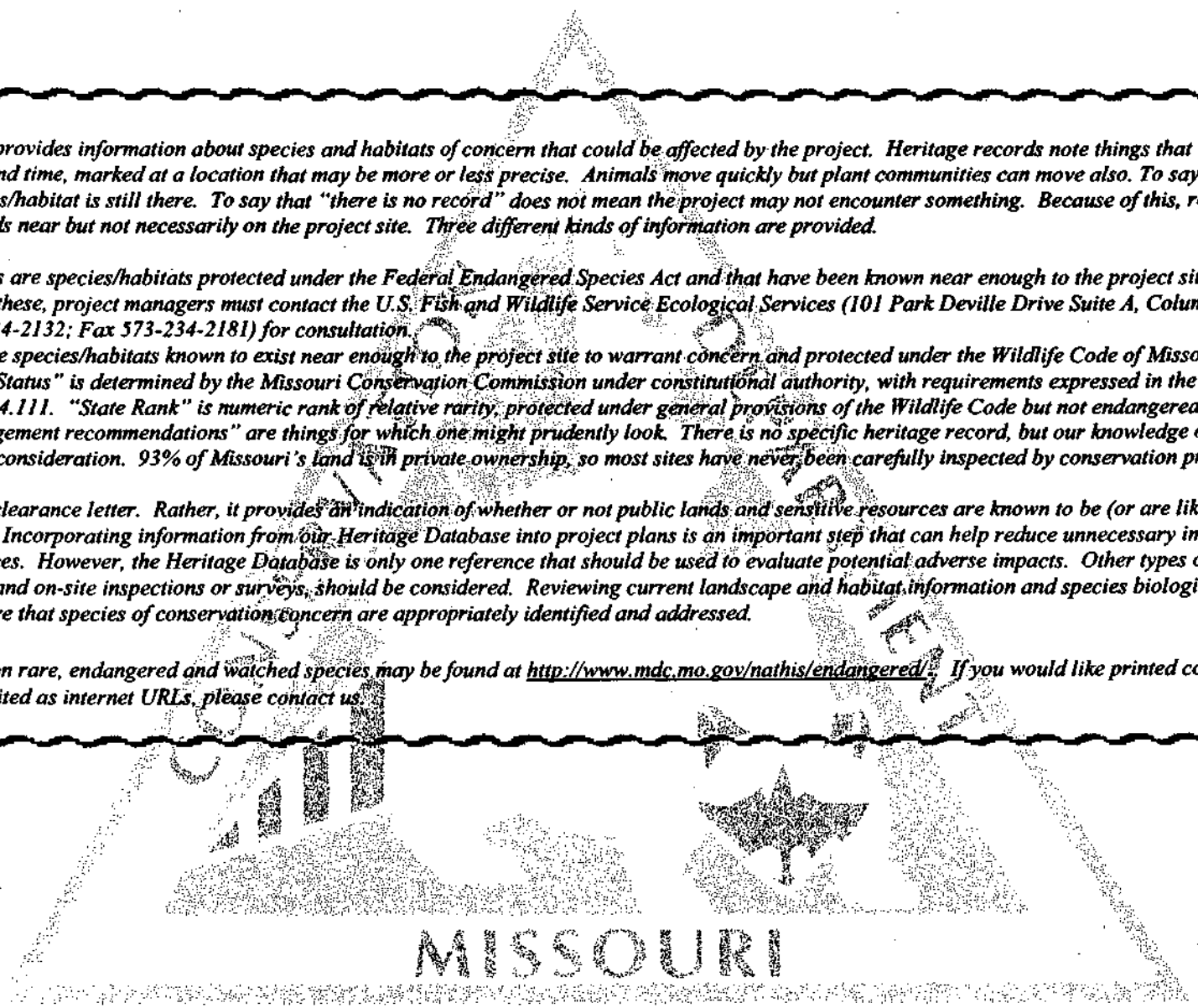


A HERITAGE REVIEW provides information about species and habitats of concern that could be affected by the project. Heritage records note things that were positively identified at some date and time, marked at a location that may be more or less precise. Animals move quickly but plant communities can move also. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean the project may not encounter something. Because of this, reports include information about records near but not necessarily on the project site. Three different kinds of information are provided.

- *FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.*
- *STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and protected under the Wildlife Code of Missouri (RSMo 3 CSR 10). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR10-4.111. "State Rank" is numeric rank of relative rarity, protected under general provisions of the Wildlife Code but not endangered.*
- *"Concerns & management recommendations" are things for which one might prudently look. There is no specific heritage record, but our knowledge of the surrounding landscape suggests consideration. 93% of Missouri's land is in private ownership, so most sites have never been carefully inspected by conservation professionals*

This report is not a site clearance letter. Rather, it provides an indication of whether or not public lands and sensitive resources are known to be (or are likely to be) located close to the proposed project. Incorporating information from our Heritage Database into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive natural resources. However, the Heritage Database is only one reference that should be used to evaluate potential adverse impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information and species biological characteristics would additionally ensure that species of conservation concern are appropriately identified and addressed.

Additional information on rare, endangered and watched species may be found at http://www.mdc.mo.gov/nathis/endangered/. If you would like printed copies of best management practices cited as internet URLs, please contact us.



Springfield-Branson
Regional Airport Site
Greene County, Missouri
MON000704766
Site Investigation
Reference 33

MEMORANDUM

DATE: 27 March, 2006

TO: Rebecca Wells-Albers, Environmental Specialist
Hazardous Waste Program, Division of Environmental Quality

FROM: Peter Bachle, Geologist,
Geological Survey Program, Division of Geology and Land Survey

SUBJECT: Addendum to Kerr-McGee Chemical Site Geohydrologic Summary

LOCATION: S ½, NE ¼, Section 9 and SW ¼, SW ¼, NW ¼ Section 10, Township 29 North, Range 22 West, Springfield 7.5-Minute Quadrangle,
Greene County, Missouri
Centered at 37° 14' 10" North Latitude and 93° 20' 0" West Longitude

As per your request, the following information deals with chlorinated solvent signatures within carbonate rocks of Missouri and how it relates to the Kerr-McGee site.

First and foremost, chlorinated solvents in groundwater can be deemed 'smeary.' Chlorinated solvents leave non-dissolved vestiges in pores throughout the rock impacted by a release. These vestiges slowly leach for decades or longer. This leaves a characteristic signature (a proverbial breadcrumb trail) within the shallow and deep bedrock aquifer. Given the large number of monitoring wells at the Kerr-McGee site, an on site chlorinated solvent source would be obvious by the existence of many shallow and deep chlorinated solvent impacted monitoring wells.

Second, the breakdown products of trichloroethene (TCE) are dichloroethene (DCE) and vinyl chloride (VC). Dichloroethane (DCA) is not commonly found with and is not a breakdown product of TCE. In the numerous chlorinated solvent sites that the Geological Survey Program has dealt with, TCE, DCE, and VC are the dominant chlorinated solvent products detected in the groundwater. DCA is often one or two orders of magnitude less concentrated than the other solvent products, if it is present.

Due to the absence of TCE and other breakdown products of TCE at the Kerr-McGee Chemical site or within the aquifer directly beneath it, it is safe to assume that the Kerr-McGee site does not contribute to the Northwest Springfield Groundwater Plume.

As an end note, TCE and its breakdown products are dense non-aqueous phase liquids (DNAPLs) and, as such, sink within an aquifer. This causes the deeper portions of an aquifer to be impacted by chlorinated solvents. Just like a comet, a chlorinated solvent plume leaves a trail that never fully descends to the bottom of an aquifer.

If you have any questions, please contact me at (573) 368-2472.

PFB

2005 - 2006 Missouri School Directory

Springfield R-XII

Phone: 417-523-0026
Fax: 417-523-0196
E-mail: nridder@spsmail.org

940 N Jefferson
Springfield, MO 65802-3718

County-District Code: 039-141
County: Greene

Supervisory Area: C
MSIP: Accredited

Assessed Valuation: $2,687,705,870

Tax Levy: $3.3303

District Planning Profile

			Enrollment (Prior Year)		
	Schools	Certificated Staff	Residents	Non-residents	Total
Elementary Schools	36	922	10968	0	10968
Middle Schools	9	399	5714	0	5714
Jr. High Schools	0	0	0	0	0
High Schools	5	441	7436	0	7436
Total	51	1762	24118	0	24118

Name	Title	Years in District
Dr. Michael Hoeman	Pres. of Bd.	
Mrs. Carol Roper	Secy. of Board	
Dr. Norman Ridder	Supt.	1
Mrs. Carol Roper	Admin. Asst.	31
Dr. Del Phillips	Assoc. Supt.	1
Dr. Peggy Riggs	Assoc. Supt.	17
Mr. Mark Fisher	Dir. Athl./Student Act.	3
Mr. Danny Fuller	Dir. Human Res.	4
Ms. Cherie Alderson	Dir. Bus. Serv.	4
Mr. Dennis Lewis	Dir. Pub. Safety/Cust.	16
Mrs. Teresa Bledsoe	Grants Writing	4
Mr. Marc Maness	Comm. Dev.	10

Mr. Rick Green	Dir. Info. Serv.	1
Mr. George Wilson	Dir. Specl. Educ.	14
Mr. Jim Dow	Dir. Maint./Fac./Grnds.	4
Mrs. Anita Kissinger	Dir. Staff Dev.	17
Dr. Teresa White	Dir. Title I/Fed. Prgms.	31
Dr. Kelvin Pamperien	Dir. Instr. Improve.	21
Mr. Chuck Stockton	Curr./Teach. Acct.	3
Mark Gideon	Prof. Dev. Chairperson	

School Name: Juvenile Justice Ctr. (1015)
Enrollment: 0
Phone: 417-868-4008
Fax: --
E-mail: ljones@spsmail.org
Coord.: Mrs. Linda Jones (18 years in district)

Grade Span: 07-12
Certificated Staff: 2
1111 N Robberson
Springfield, MO 65802-3842

School Name: Bailey Educational Ctr. (1020)
Enrollment: 0
Phone: 417-523-2700
Fax: 417-523-2795
E-mail: LJONES@SPSMAIL.ORG
Coord.: Mrs. Linda Jones (18 years in district)

Grade Span: 09-12
Certificated Staff: 10
501 W Central
Springfield, MO 65802-3930

School Name: Phelps Gifted Ctr. (1026)
Enrollment: 0
Phone: 417-523-3300
Fax: 417-523-3395
E-mail: rhampton@spsmail.org
Coord.: Mr. Ronald Hampton (23 years in district)

Grade Span: 01-12
Certificated Staff: 31
934 S Kimbrough
Springfield, MO 65806-3313

School Name: Central High (1050)
Enrollment: 1438
Phone: 417-523-9600
Fax: 417-523-9695
E-mail: eisaacs@spsmail.org
Prin.: Mr. Everett Isaacs (28 years in district)

Grade Span: 06-12
Certificated Staff: 88
423 E Central
Springfield, MO 65802-3723

School Name: Glendale High (1075)
Enrollment: 1520
Phone: 417-523-8900
Fax: 417-523-8995
E-mail: gprouty@spsmail.org
Prin.: Mr. Gary S Prouty (30 years in district)

Grade Span: 09-12
Certificated Staff: 88
2727 S Ingram Mill
Springfield, MO 65804-4098

School Name: Hillcrest High (1080)
Enrollment: 1250
Phone: 417-523-8000
Fax: 417-523-8095
E-mail: JHERRELL@SPSMAIL.ORG
Prin.: Mr. Justin L Herrell (10 years in district)

Grade Span: 09-12
Certificated Staff: 74
3319 N Grant
Springfield, MO 65803-1036

School Name: Kickapoo High (1085)
Enrollment: 1714
Phone: 417-523-8500
Fax: 417-523-8595
E-mail: dbloch@spsmail.org
Prin.: Mr. Douglas K Bloch (27 years in district)

Grade Span: 09-12
Certificated Staff: 99
3710 S Jefferson
Springfield, MO 65807-1459

School Name: Parkview High (1095)
Enrollment: 1514
Phone: 417-523-9200
Fax: 417-523-2337
E-mail: jbrunner@spsmail.org
Prin.: Mrs. Judy Brunner (22 years in district)

Grade Span: 09-12
Certificated Staff: 92
516 W Meadowmere
Springfield, MO 65807-1494

School Name: Carver Middle (3000)
Enrollment: 805
Phone: 417-888-2510
Fax: 417-888-2514
E-mail: do'reilly@spsmail.org
Prin.: Dr. Dan O'Reilly (5 years in district)

Grade Span: 06-08
Certificated Staff: 52
3325 W Battlefield
Springfield, MO 65807-3872

School Name: Cherokee Middle (3020)
Enrollment: 954
Phone: 417-523-7200
Fax: 417-523-7295
E-mail: DSCHMITZ@SPSMAIL.ORG
Prin.: Mr. David Schmitz (4 years in district)

Grade Span: 06-08
Certificated Staff: 58
420 E Farm Rd 182
Springfield, MO 65810-2610

School Name: Hickory Hills Middle (3040)
Enrollment: 539
Phone: 417-523-7100
Fax: 417-523-7195
E-mail: kallison@spsmail.org
Prin.: Mr. Kelly Allison (19 years in district)

Grade Span: 06-08
Certificated Staff: 37
3429 E Trafficway
Springfield, MO 65802-2577

School Name: Jarrett Middle (3060)
Enrollment: 595
Phone: 417-523-6600
Fax: 417-523-2163
E-mail: nquinn@spsmail.org
Prin.: Dr. Nathaniel E Quinn (22 years in district)

Grade Span: 06-08
Certificated Staff: 40
840 S Jefferson
Springfield, MO 65806-3202

School Name: Pershing Middle (3080)
Enrollment: 776
Phone: 417-523-2400
Fax: 417-523-2495
E-mail: kfinch@spsmail.org
Prin.: Dr. Kim Finch (25 years in district)

Grade Span: 06-08
Certificated Staff: 48
2120 Ventura
Springfield, MO 65804-2718

School Name: Pipkin Middle (3100)
Enrollment: 554
Phone: 417-523-6000
Fax: 417-523-6195
E-mail: sharwick@spsmail.org

Grade Span: 06-08
Certificated Staff: 46
1215 Boonville
Springfield, MO 65802-1801

Prin.: Dr. Sharri Harwick (10 years in district)

School Name: Pleasant View Middle (3120)
Enrollment: 399
Phone: 417-523-2100
Fax: 417-523-2395
E-mail: rsnodgrass@spsmail.org
Grade Span: 06-08
Certificated Staff: 30
2210 E State Hwy AA
Springfield, MO 65803-9753
Prin.: Dr. Ronald Snodgrass (20 years in district)

School Name: Reed Middle (3140)
Enrollment: 619
Phone: 417-523-6300
Fax: 417-523-6395
E-mail: LFORD@SPSMAIL.ORG
Grade Span: 06-08
Certificated Staff: 47
2000 N Lyon
Springfield, MO 65803-2644
Prin.: Mr. Leslie D Ford (3 years in district)

School Name: Study Middle (3160)
Enrollment: 473
Phone: 417-523-6510
Fax: 417-523-6495
E-mail: JRUSH@SPSMAIL.ORG
Grade Span: 06-08
Certificated Staff: 41
2343 W Olive
Springfield, MO 65802-4553
Prin.: Mr. James T Rush (13 years in district)

School Name: Bingham Elem. (4040)
Enrollment: 373
Phone: 417-523-3400
Fax: 417-523-3495
E-mail: djohnson@spsmail.org
Grade Span: K-05
Certificated Staff: 29
2126 Cherry
Springfield, MO 65802-2957
Prin.: Mr. Darrell Johnson (19 years in district)

School Name: Bissett Elem. (4060)
Enrollment: 247
Phone: 417-523-2800
Fax: 417-523-2895
E-mail: alaliberty@spsmail.org
Grade Span: K-05
Certificated Staff: 24
3014 W Calhoun
Springfield, MO 65802-1107
Prin.: Ms. Alice Laliberty (6 years in district)

School Name: Bowerman Elem. (4080)
Enrollment: 210
Phone: 417-523-1400
Fax: 417-523-1495
E-mail: wzongker@spsmail.org
Grade Span: K-05
Certificated Staff: 22
2148 N Douglas
Springfield, MO 65803-1432
Prin.: Mr. Wesley Zongker (27 years in district)

School Name: Boyd Elem. (4100)
Enrollment: 141
Phone: 417-523-1500
Fax: 417-895-2768
E-mail: jgrandon@spsmail.org
Grade Span: K-05
Certificated Staff: 17
1409 Washington
Springfield, MO 65802-1937
Prin.: Mr. James Grandon (5 years in district)

School Name: Campbell Elem. (4120)
Enrollment: 233
Phone: 417-523-3200
Grade Span: K-05
Certificated Staff: 20
506 S Grant

Fax: 417-523-3295
E-mail: tbrown@spsmail.org
Springfield, MO 65806-2008
Prin.: Mr. Tim Brown (26 years in district)

School Name: Cowden Elem. (4140)
Grade Span: K-05
Enrollment: 253
Certificated Staff: 26
Phone: 417-523-3500
Fax: 417-888-2504
E-mail: jroebke@spsmail.org
2927 S Kimbrough
Springfield, MO 65807-3601
Prin.: Mrs. Jane Roebke (18 years in district)

School Name: Delaware Elem. (4160)
Grade Span: K-05
Enrollment: 197
Certificated Staff: 28
Phone: 417-523-3700
Fax: 417-523-3795
E-mail: dprouty@spsmail.org
1505 S Delaware
Springfield, MO 65804-1207
Prin.: Mrs. Donna Prouty (23 years in district)

School Name: Field Elem. (4240)
Grade Span: K-05
Enrollment: 279
Certificated Staff: 21
Phone: 417-523-4800
Fax: 417-888-2543
E-mail: ncolbough@spsmail.org
2120 Barataria
Springfield, MO 65804-3813
Prin.: Mrs. Nancy Colbaugh (19 years in district)

School Name: Fremont Elem. (4260)
Grade Span: K-05
Enrollment: 161
Certificated Staff: 21
Phone: 417-523-1700
Fax: 417-523-1795
E-mail: SMCCOLLEGAN@SPSMAIL.ORG
2814 N Fremont
Springfield, MO 65803-4319
Prin.: Mrs. Susan McCollegan (7 years in district)

School Name: Gray Elem. (4270)
Grade Span: K-04
Enrollment: 627
Certificated Staff: 40
Phone: 417-523-4000
Fax: 417-888-2694
E-mail: cmendel@spsmail.org
2102 W Farm Rd 182
Springfield, MO 65810-2264
Prin.: Mrs. Christine Mendel (15 years in district)

School Name: Hickory Hills Elem. (4280)
Grade Span: K-05
Enrollment: 276
Certificated Staff: 22
Phone: 417-523-7100
Fax: 417-523-7195
E-mail: kallison@spsmail.org
3429 E Trafficway
Springfield, MO 65802-2577
Prin.: Mr. Kelly Allison (19 years in district)

School Name: Holland Elem. (4300)
Grade Span: K-05
Enrollment: 225
Certificated Staff: 24
Phone: 417-523-4100
Fax: 417-523-4195
E-mail: kjohnson@spsmail.org
2403 S Holland
Springfield, MO 65804-2929
Prin.: Mrs. Karie Johnson (8 years in district)

School Name: Horace Mann Elem. (4320)
Grade Span: K-05

Enrollment: 439
Phone: 417-523-4400
Fax: 417-523-4495
E-mail: mriley@spsmail.org
Prin.: Ms. Melissa Riley (8 years in district)

Certificated Staff: 37
3745 S Broadway
Springfield, MO 65807-4547

School Name: Jeffries Elem. (4330)
Enrollment: 476
Phone: 417-523-3900
Fax: 417-888-2600
E-mail: dmartin@spsmail.org
Prin.: Mr. David Martin (15 years in district)

Grade Span: K-05
Certificated Staff: 37
4051 S Scenic
Springfield, MO 65807-3994

School Name: Walt Disney Elem. (4340)
Enrollment: 581
Phone: 417-523-3600
Fax: 417-523-3695
E-mail: jutne@spsmail.org
Prin.: Dr. John Utne (18 years in district)

Grade Span: K-05
Certificated Staff: 34
4100 S Fremont
Springfield, MO 65804-6506

School Name: Mark Twain Elem. (4360)
Enrollment: 510
Phone: 417-523-4300
Fax: 417-888-2584
E-mail: jbagwell@spsmail.org
Prin.: Mrs. Janell Bagwell (9 years in district)

Grade Span: K-05
Certificated Staff: 30
2352 S Weaver
Springfield, MO 65807-2592

School Name: McBride Elem. (4380)
Enrollment: 660
Phone: 417-523-4500
Fax: 417-523-4595
E-mail: brange@spsmail.org
Prin.: Mr. Bret Range (6 years in district)

Grade Span: K-04
Certificated Staff: 43
5005 S Farm Rd 135
Springfield, MO 65810-1901

School Name: McGregor Elem. (4400)
Enrollment: 302
Phone: 417-523-5700
Fax: 417-523-5795
E-mail: kgross@spsmail.org
Prin.: Ms. Idonna K Gross (16 years in district)

Grade Span: K-05
Certificated Staff: 31
1221 W Madison
Springfield, MO 65806-1803

School Name: Pershing Elem. (4460)
Enrollment: 137
Phone: 417-523-2400
Fax: 417-523-2495
E-mail: kfinch@spsmail.org
Prin.: Dr. Kim Finch (26 years in district)

Grade Span: K-05
Certificated Staff: 17
2120 Ventura
Springfield, MO 65804-2718

School Name: Pittman Elem. (4500)
Enrollment: 286
Phone: 417-523-4700
Fax: 417-888-2568
E-mail: gtew@spsmail.org
Prin.: Mr. Gary Tew (16 years in district)

Grade Span: K-05
Certificated Staff: 23
2934 E Bennett
Springfield, MO 65804-1945

School Name: Pleasant View Elem. (4510)
Enrollment: 255
Phone: 417-523-2100
Fax: 417-523-2395
E-mail: rsnodgrass@spsmail.org
Prin.: Dr. Ronald Snodgrass (19 years in district)

Grade Span: K-05
Certificated Staff: 21
2210 E State Hwy AA
Springfield, MO 65803-8655

School Name: Portland Elem. (4520)
Enrollment: 210
Phone: 417-523-4600
Fax: 417-895-2094
E-mail: LHOPPER@SPSMAIL.ORG
Prin.: Mrs. Lora Hopper (11 years in district)

Grade Span: K-05
Certificated Staff: 19
906 W Portland
Springfield, MO 65807-1917

School Name: Robberson Elem. (4560)
Enrollment: 282
Phone: 417-523-1800
Fax: 417-523-1895
E-mail: khuffman@spsmail.org
Prin.: Mr. Kevin Huffman (10 years in district)

Grade Span: K-05
Certificated Staff: 27
1100 E Kearney
Springfield, MO 65803-3436

School Name: Rountree Elem. (4580)
Enrollment: 261
Phone: 417-523-4900
Fax: 417-523-4995
E-mail: CHARRALSON@SPSMAIL.ORG
Prin.: Mrs. Carolyn Harralson (6 years in district)

Grade Span: K-05
Certificated Staff: 21
1333 E Grand
Springfield, MO 65804-0117

School Name: Sequiota Elem. (4600)
Enrollment: 344
Phone: 417-523-5400
Fax: 417-523-5495
E-mail: ncauldwell@spsmail.org
Prin.: Dr. Natalie Cauldwell (12 years in district)

Grade Span: K-05
Certificated Staff: 25
3414 S Mentor Rd
Springfield, MO 65804-4826

School Name: Shady Dell Elem. (4620)
Enrollment: 153
Phone: 417-523-1300
Fax: 417-523-1395
E-mail: BROHLF@SPSMAIL.ORG
Prin.: Dr. Beverly Rohlf (22 years in district)

Grade Span: K-05
Certificated Staff: 17
2757 E Division
Springfield, MO 65803-5263

School Name: Sherwood Elem. (4640)
Enrollment: 265
Phone: 417-523-3800
Fax: 417-523-3895
E-mail: lhaase@spsmail.org
Prin.: Mrs. Lesa Haase (25 years in district)

Grade Span: K-05
Certificated Staff: 20
1813 S Scenic
Springfield, MO 65807-2199

School Name: Sunshine Elem. (4680)
Enrollment: 183
Phone: 417-523-5200
Fax: 417-523-5295
E-mail: MVALDEZ@SPSMAIL.ORG

Grade Span: K-05
Certificated Staff: 16
421 E Sunshine
Springfield, MO 65807-2642

Prin.: Mrs. Maxine Valdez (17 years in district)

School Name: Truman Elem. (4710)
Enrollment: 273
Phone: 417-523-5100
Fax: 417-523-5242
E-mail: janderson@spsmail.org
Prin.: Mr. Jason Anderson (7 years in district)

Grade Span: K-05
Certificated Staff: 26
3850 N Farm Rd 159
Springfield, MO 65803-9285

School Name: Watkins Elem. (4720)
Enrollment: 273
Phone: 417-523-5000
Fax: 417-523-5095
E-mail: jcallaway@spsmail.org
Prin.: Mr. Joe Callaway (10 years in district)

Grade Span: K-05
Certificated Staff: 25
732 W Talmage
Springfield, MO 65803-1118

School Name: Weaver Elem. (4740)
Enrollment: 130
Phone: 417-523-1200
Fax: 417-895-2128
E-mail: jandrus@spsmail.org
Prin.: Mrs. Janelle Andrus (16 years in district)

Grade Span: K-05
Certificated Staff: 18
1461 N Douglas
Springfield, MO 65802-1779

School Name: Weller Elem. (4760)
Enrollment: 224
Phone: 417-523-1900
Fax: 417-895-2134
E-mail: mmonroe@spsmail.org
Prin.: Mrs. Marilyn Monroe (17 years in district)

Grade Span: K-05
Certificated Staff: 24
1630 N Weller
Springfield, MO 65803-3865

School Name: Westport Elem. (4780)
Enrollment: 450
Phone: 417-523-3100
Fax: 417-895-2139
E-mail: nbrake@spsmail.org
Prin.: Dr. Nancy Brake (5 years in district)

Grade Span: K-05
Certificated Staff: 36
415 S Golden
Springfield, MO 65802-4709

School Name: Wilder Elem. (4800)
Enrollment: 361
Phone: 417-523-5300
Fax: 417-888-2616
E-mail: jcausey@spsmail.org
Prin.: Ms. Jeannine Causey (6 years in district)

Grade Span: K-05
Certificated Staff: 26
2526 S Hillsboro
Springfield, MO 65804-4132

School Name: Williams Elem. (4820)
Enrollment: 291
Phone: 417-523-2000
Fax: 417-523-2095
E-mail: lmiller@spsmail.org
Prin.: Dr. Lynne Miller (22 years in district)

Grade Span: K-05
Certificated Staff: 28
2205 W Kearney
Springfield, MO 65803-2028

School Name: Wilson's Creek 5-6 Inter. Ctr. (4830)
Enrollment: 0

Grade Span: 05-06
Certificated Staff: 0

Phone: 417-523-7800
Fax: 417-523-7895
E-mail: kphillips@spsmail.org
Prin.: Ms. Karyn Phillips (3 years in district)

4035 W Weaver Rd
Battlefield, MO 65619-9255

School Name: York Elem. (4840)
Enrollment: 222
Phone: 417-523-3000
Fax: 417-895-2149
E-mail: gdanielson@spsmail.org
Prin.: Mr. Gary Danielson (2 years in district)

Grade Span: K-05
Certificated Staff: 27
2100 Nichols
Springfield, MO 65802-4267

Missouri Department of Elementary and Secondary Education
Email: Doug.Roach@dese.mo.gov
Revised: August 4, 2006
